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AMERICAN

JAN 26 1953

JANUARY • 1953

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

THEATRE
TELEVISION
INDUSTRIAL
AMATEUR

COPY



In This Issue . . .

- Plan Your Scenes In Sequence
- Techniques For Filming Exteriors
- Contribution of Photography To 'Production Value'

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"THE THIEF" takes top honors...

Du Pont "Superior" 2 captures proper moods in "no-dialogue" drama

"The Thief"—suspenseful thriller produced by Clarence Greene for United Artists and starring Ray Milland—is another smash picture made this year on Du Pont Motion Picture Film.

Not a word is spoken in the picture . . . so skillful camera work was essential to create the mood of the plot. "Superior" 2 Type 926 film provided the exact contrast and latitude needed.

Director Russell Rouse and Sam Leavitt, Director of Photography, combined their skills to meet a deadline which demanded shooting under the toughest weather and lighting conditions. Type 926 Film solved the problem . . . enabled the camera crew to obtain dependable results on every "take." Photo shows cast and crew atop the Empire State Building, 1050 feet above the sidewalks of New York.

Throughout the motion picture and television industries . . . for both interior and exterior shooting . . . leading cameramen rely on Du Pont products. In high- or low-key lighting, even under the worst conditions, these films assure bright, contrasty screen or kinescope pictures . . . outstanding sound recording. Whether you require a negative taking or positive stock, duplicating or special-purpose film . . . there's a dependable Du Pont product for the job. E. I. du Pont de Nemours & Co. (Inc.), Photo Products Department, Wilmington 98, Delaware.

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JAN 26 1953

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“**a RUGGED** camera...”



Gene and Charlie Jones, NBC-TV's famous twin team, examine one of their Bell & Howell "70" cameras in a Korean forward area.

NBC's newsreel men prove B&H cameras under fire

In the thick of the Korean action from the very beginning, the Jones Brothers have sent NBC-TV some of the finest War pictures ever filmed, including many exclusives. These movies were filmed under exceedingly tough and dangerous conditions. In fact, when Gene Jones was wounded in the chest at the Inchon invasion, he had to inch his way back to the beachhead through hundreds of yards of severe fire . . . protecting the pre-

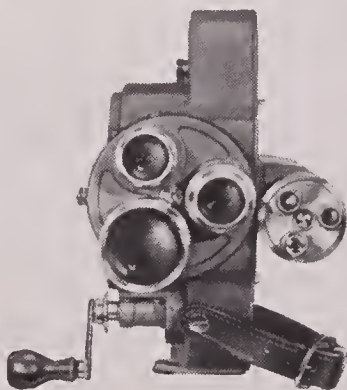
cious film in his B&H "70" for NBC-TV *News Caravan* viewers.

Here's what the Jones Twins say about their Bell & Howell Cameras in a letter to Robert McCormick of NBC: "... We try to ship or shoot 500 feet per day. The Bell & Howell is a rugged little camera. Both of ours have been damaged in combat . . . but we've managed to have them repaired by Signal Corps people."

Features of the New B&H 70-DL

3-Lens Turret Head for instant lens change; Critical Focuser permits precise focusing through the lens; Viewfinder Turret rotates positive viewfinder objectives to match lenses on lens turret; Powerful Spring Motor operates 22 feet of film on one winding . . . maintains speed accurately throughout film run; Hand Crank for short double exposures, other trick effects and unlimited film run; 7 Film Speeds include 8, 12, 16 (normal), 24 (sound), 32, 48 and 64 (true slow motion) frames per second; Film Plane Mark for accurate focusing measurement; Parallax Adjustment corrects from infinity to 3 feet; Eyepiece focuses for individual sight variations . . . increases illumination to the eye up to 600%. Complete with 1" f/1.9 lens only, \$365.50.

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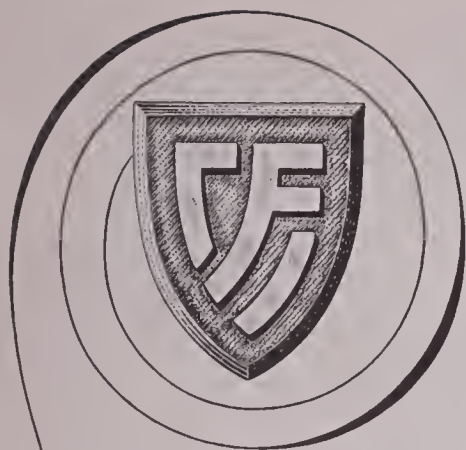
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The Bell & Howell "70" camera is indeed a "rugged" camera. But that isn't the only reason why it is the favorite of professionals and ambitious amateurs. This camera is designed to make the highest quality movies, yet can be carried anywhere . . . either hand held or set up in a matter of seconds to shoot under the most adverse conditions.

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Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF AMERICAN SOCIETY OF CINEMATOGRAPHERS

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JANUARY • 1953

NO. 1

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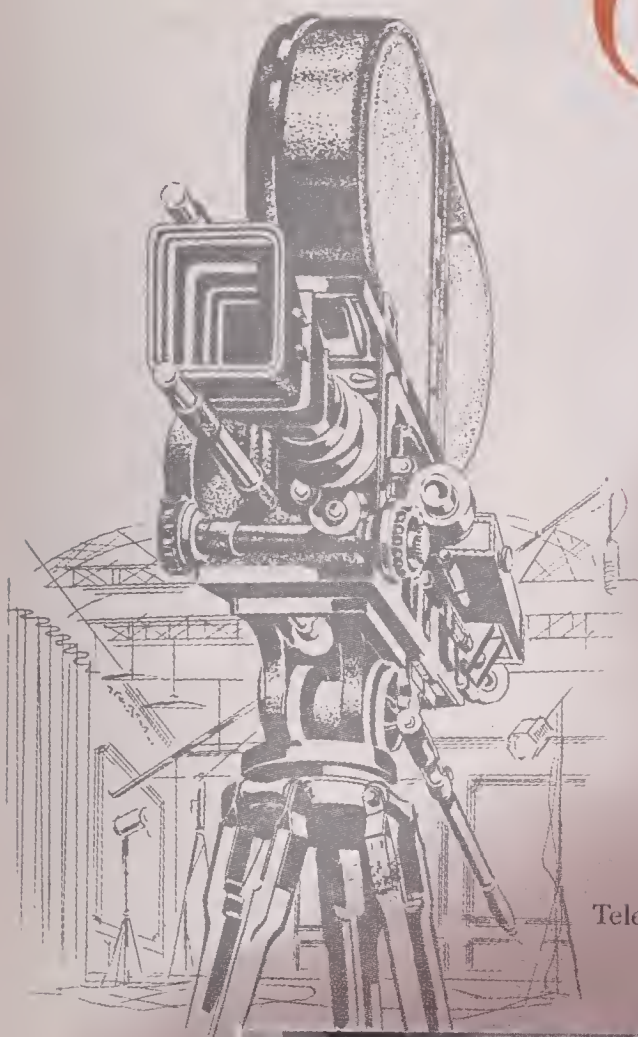
FOR SEQUENCES for their new musical, "By The Light Of The Silvery Moon." Warner Brothers converted one of the sound stages into a big ice rink. Here director of cinematography Wilfrid Cline, ASC. (on boom, wearing eye shade) and his Technicolor camera crew film a closeup of the sleigh party which includes (l to r) Leon Ames, Rosemary DeCamp, Mary Wickes, Billy Gray, Doris Day, and Gordon MacRae.—*Photograph by Jack Woods.*

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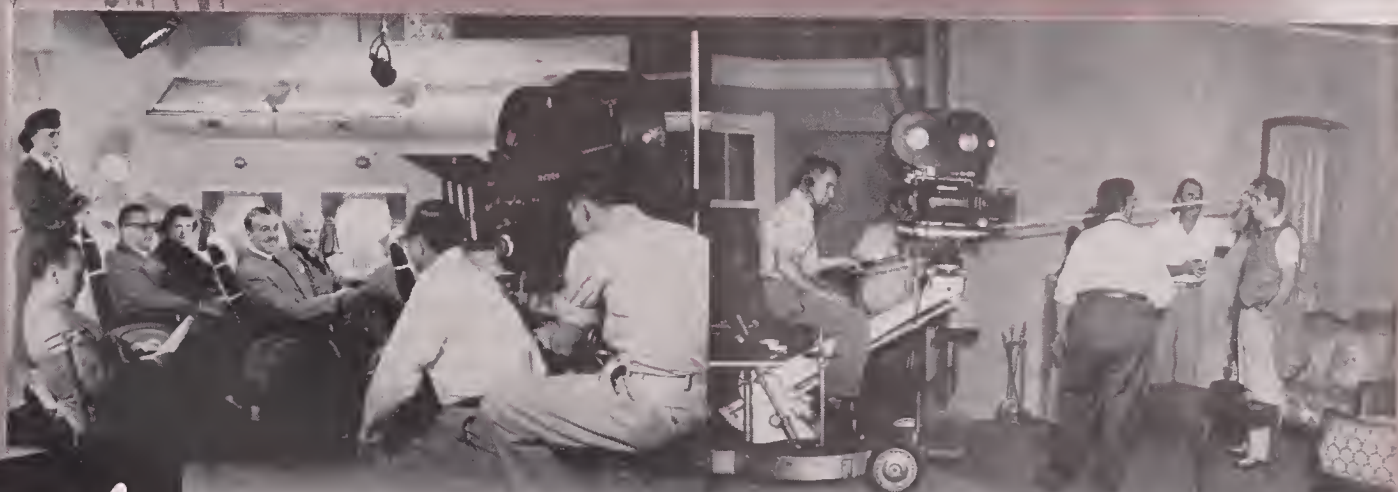
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Tam Kelley Studios shoots a TV commercial for North American Airlines with this Mitchell 35 "NC". Cesar Romera is shown at center.

One of three Mitchell 35mm "BNC" Cameras used by De M. Productions on the "I Love Lucy" series with Desi Arnaz, right, and Lucille Ball.

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Hollywood Bulletin Board



ARTHUR MILLER, ASC, is congratulated by Fred W. Jackman, ASC, following presentation of commemorative plaque to Miller at Society's December meeting.

THE ASC paid special tribute to one of its old-time members, Arthur Miller, when at the Society's December meeting it presented him with a plaque commemorating his long and brilliant career as a cinematographer. Following the acceptance, Miller talked briefly on his early-day experiences and introduced some of his old-time co-workers.

A chapter of the old silent days serial, "Perils of Pauline"—which Miller filmed—was screened following the dinner. (More details on Arthur Miller's cinematographic career appears elsewhere in this issue. ED.)

CHARLES ROSHER'S long-anticipated retirement from the Hollywood motion picture industry became reality last month, when he and Mrs. Rosher flew to their island estate in Jamaica where they will settle permanently.

Speculation at this time indicates that Rosher will return to Hollywood at least once yearly to photograph a picture for his favorite MGM director, George Sidney.

KARL STRUSS, ASC, for the third consecutive year, was a member of the judging panel for the annual Sylvania Television Awards.

GEORGES BENOIT, one of ASC's old-time non-resident members, passed away last month in France. Benoit had been a member of the Society since 1921, and had served on its Board of Directors. In recent years he had operated a small motion picture theatre in a Paris suburb, and made it a point always to look

up his American contemporaries whenever they were assigned to photograph a picture in France.

AL GILKS, ASC, had an interesting photographic assignment last month when he was selected to photograph two TV films in the series, "The Swayzes In Vacationland," featuring John Cameron Swayze of the Camel Caravan TV show. Most interesting part of assignment was shooting sequences in San Francisco's Chinatown. Using a Mitchell BNC camera and skeleton crew, Gilks followed a documentary technique in the filming throughout.

BUSIEST CINEMATOGRAPHER in Hollywood perhaps is Karl Freund, ASC. Besides shooting the weekly "Our Miss Brooks" TV show—the "I Love Lucy Show" group is vacationing pending Lucy's forthcoming blessed event—Freund has been delivering lectures or consulting with various companies on his light and color measurement techniques.

Since presenting his paper on "Shooting Live TV Shows On Film" at the SMPTE convention in Washington, D.C. last October, Freund's paper has been presented before groups in Los Angeles, San Francisco, Chicago, and Ottawa, Canada. Further presentations will be made in New York City and Dallas, Texas this month.

Freund, incidentally, is the only film cameraman to share in the 1952 Sylvania Awards. Last month he was presented with a Certificate of Merit for his "I Love Lucy Show" photography. The award cited him for outstanding achievement in creative television techniques.



KARL FREUND, ASC, is only cameraman to share in Sylvania TV Awards for 1952. Merit certificate was awarded him for filming "I Love Lucy" shows.

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This versatile piece of equipment provides the cameraman with complete mobility and adjustment of camera angles. Leveling head, upon which friction or geared head is mounted, can be quickly, smoothly raised from 14" to 70" high, remaining level at all times. Entire cantilever arm revolves easily on turret base fast or slowly. Dolly rolls smoothly, quietly, turns on its own axis or can be moved sideways. Very maneuverable in tight places. Steel and aluminum construction provides maximum strength and minimum weight. Top quality throughout. Developed and improved during many years use by leading Hollywood Studios.



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Yours sincerely,

Ernest G. Brooks
Ernest G. Brooks
Director

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Enclosure



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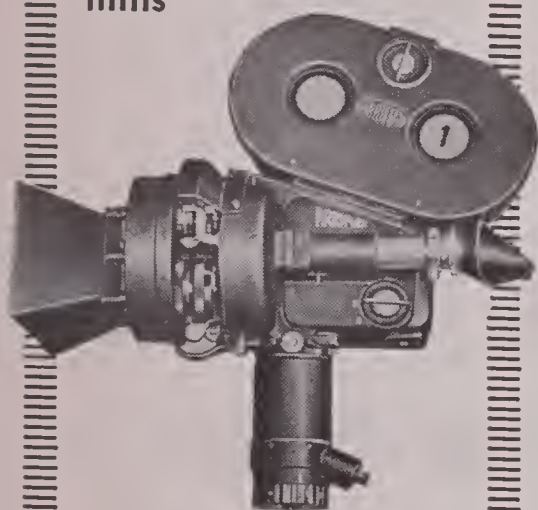
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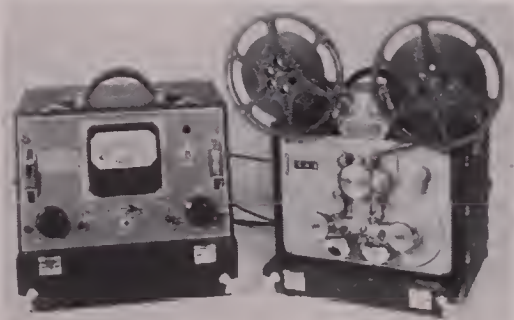
WHAT'S NEW in equipment, accessories, service

Collapsible Camera Dolly — A new collapsible 3-wheel camera dolly is announced by National Cine Equipment, Inc., 209 W. 48th St., New York City. Constructed of sturdy cast aluminum, it folds into a single light-weight unit, provides



an adjustable spring seat for operator, and has extra-wide rubber-tired wheels for easy steering and added rigidity. Jack screws provide leveling or locking in stationary position. The dolly folds into a compact case 20" x 20" x 36".

Kinevox In Canada — Kinevox, Inc., Burbank, Calif., announces that Perkins Electric Co., Ltd., with offices and display rooms in every province in Canada, has been appointed sole Canadian distributor of Kinevox synchronous magnetic film recorders and associated equipment. Len Roos, Kinevox president, reports increasing use of Kinevox recorders in the fast-growing Canadian film industry.



Magnasync Recorder — Magnetic Recorders Company, 7120 Melrose Ave., Los Angeles 46, Calif., announce the Magnasync, a new portable, synchronous magnetic film recorder which records on either 16mm or 17 $\frac{1}{2}$ mm single or double-perforated film, and sells for the

remarkable low price of \$1,275.00.

Designed for every professional use in film production, it features full 1200 ft. film capacity, footage counter; sync motor drive; is adaptable to interlock; and weighs only 39 lbs.

Descriptive literature is available; also demonstration of equipment in the So. California area.

Acmiola Editing Machines — Acmiola Distributing Co., a division of S.O.S. Cinema Supply Corp., New York City, announces that 19 different models of Acmiola film editing machines are now available from the company, with shipments available within 3 months following receipt of order.

Design of the equipment provides familiar straight up and down threading. All machines have reversible variable speed motors, with foot and hand controls; an unusually sharp film image is projected on a 6" x 8 $\frac{1}{2}$ " shadow box screen. Same image can also be pro-



jected up to 3 ft. in width on separate screen, if desired.

All sound machines have built-in hi-fidelity power amplifier. Multiple-head models provide separate controls for each sound head with overall mixing gain control. A comprehensive illustrated catalog of Acmiola editing equipment is available.

Colortran Announcement — L. V. Grover, originator of the Colortran and the
(Continued on Page 45)

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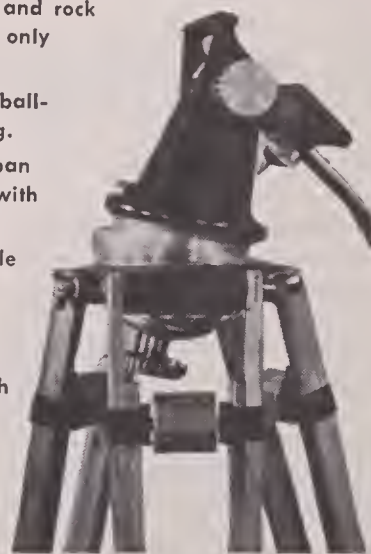
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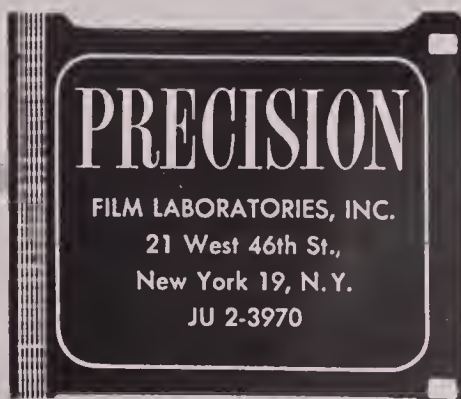
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CLOSEUPS

Notes and Editorial Comment

by the Editor...

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

ERNIE HALLER HOLLERS BACK!—It is incredible to what extent dissident factions in some foreign countries can read the most biased of thoughts into the reportings of the American press. It is a growing evil in which those dedicated to tearing down America and Americans make use of every opportunity to distort facts in an effort to discredit us before their people.

What brings all this up is a piece entitled "Ernie Haller 'Hollers'!" which appeared in a recent issue of *Blitz*, published in Bombay, India. The writer of the piece, hiding in by-line-less anonymity, says:

"The camera does not lie, or so they say! But we know for a fact that a certain cameraman does, and has!! The gentleman concerned in the case is the much-feted cameraman, Ernie Haller of the Technicolor crew of "Monsoon" and "Jhansi-Ki-Rani," who, after a brief stay in this country, has, like other Americans, written an article about this land of ours."

Blitz's writer then goes on to criticize some of Haller's statements, reported in the article by Frederick Foster in the June, 1952, issue of *AC*.

In rebuttal, Haller has written an open letter which he has titled: "Ernie Haller Hollers Back!"—in which he states:

"Ernie Haller hollers back because, considering that at the time the article in question was written there was a possibility that I would return to India to photograph another picture, I certainly would not intentionally ridicule or belittle the Indian people who had aided me not only in my work but by their many kindnesses.

"The interview, which culminated in Frederick Foster's story, was patterned on the American's working problems in another country. Concerning the tea periods which I mentioned, and to which *Blitz* takes exception, why did not *Blitz's* critic quote my *entire* statement which said further: '... similar to the coffee breaks of the American worker.'

"As to re-educating my Indian staff to Western studio methods, every cameraman regardless in what foreign country he is assigned to photograph a picture, must school or re-train the native technicians assigned to work with him. This is not to belittle the native worker, but the training is necessary in order to educate the technicians to the cameraman's own methods, admittedly essential.

"My greatest difficulty, perhaps, was on the American production, "Monsoon," because of the *lack of equipment that had been promised me*, and the very long hours we were compelled to put in.

"The color prejudice which the *Blitz* writer mentioned, is definitely not inferred anywhere in Foster's article, and is simply his own distortion of the facts. I have travelled all over the world, have met and made many friends in many lands, and never once have I shown any prejudice of color or faith—for I live by my country's ways: Freedom of speech, of color, and of creed.

"To my producer in India, Mr. Sohrab Modi and his charming wife Mehtab, I have only the very highest regard and wish them the greatest success with their picture "Jhansi-Ki-Rani," of which I did a small part in the photography. And as for my associate cameramen, Mr. Malhotra and Mr. Sarpodar, who were a constant help to me, I have never met two finer men anywhere.

—Ernie Haller."



SEVEN out of 10 winners used Bolex!



MAXIM AWARD WINNER AS WELL AS 6 OTHER WINNERS IN ACL "BEST AMATEUR MOVIE OF 1952" PREFERRED THE VERSATILE BOLEX!

Bolex joins with the Amateur Cinema League in offering heartiest congratulations to Mr. & Mrs. T. Lawler and the 9 other 1952 prize winners. Seven Bolex users out of 10 prize winners, and in addition, 5 Bolex users out of 12 honorable mention winners, are a positive indication that Bolex versatility SWEEPS THE FIELD! Listen to what they say about Bolex!

Mr. & Mrs. T. Lawler, Kenosha, Wisconsin

"Our Bolex is the only movie camera we have used, and it has seen much service since we bought it in 1943. It has made the 'Ten Best' twice before."

Mr. Haven Trecker, Kankakee, Ill.

"My Bolex H-16 has come through for me again!"

Mr. A. T. Bartlett, Queensland, Australia

"My Bolex is a joy to use; with it I have made four award-winning films."

Mr. Mathis Kverne, Oslo, Norway

"My whole film was taken with the Bolex single-frame setting. It worked perfectly all the time. I would not change my Bolex for any other."

Mr. Geo. A. Valentine, Glenbrook, Conn.

"I chose the Bolex H-8 because it's the only 8mm camera that has all the features needed for professional effects."

Mr. Robt. G. Williams, Toledo, Ohio

"I like my Bolex because its built-in features let you know right where you are every moment."

Mr. James L. Watson, Worcester, Mass.

"Movie makers express themselves through their films. I insist on perfection. My Bolex speaks for me."

Thank you, Bolex fans, for your vote of confidence. Read in BOLEX REPORTER how prize-winners made their movies.

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is doing a whale of a job every day**



VARIABLE SPEED MOTOR—110 Volt AC/DC—
with Tochrometer for EK Cine Special

Motor drive your Cine Special with confidence! Tochrometer is mounted in clear view of operator. Calibrated from 16 to 64 frames per second. Definite RED marking for 24 fps. Electric governor adjusts speeds. Steady operation at all speeds. No adapters needed. Motor coupling attaches to camera and couples to motor. Spring steel drive arm shears if film jam occurs. Easily replaced.

SYNCHRONOUS MOTOR DRIVE—110 Volt AC
—Single phase, 60 Cycle.

Runs in perfect synchronization with either 16mm or 35mm Sound Recorders. Mounting platform permits removal of magazine while camera remains mounted on motor. Spring steel drive fin coupling prevents damage if film jam occurs.

Knurled knob on armature permits rotating for threading. "On-Off" switch in base. Platform base threaded for 1/4" or 3/8" tripod tie-down screw. Rubber covered power cable with plugs included.



**HEAD ILLUSTRATED CONTAINS ADJUSTABLE CAMERA TIE-DOWN SCREW
FOR LOCATING CENTER OF GRAVITY. THIS FEATURE IS OPTIONAL.**



"BALANCED" TV HEAD

We threw the book away and engineered a brand new "BALANCED" Tripod for every photographic and video need. The result—a revelation in effortless operation, super-smooth tilt and 360° pan action.

PERFECT BALANCE prevents mishap if the lock lever is not applied. Quick release pan handle locks into desired position. Mechanism is enclosed, rust-proof, needs no lubrication.

Tension adjustment for Camera Man's preference. Built-in spirit level. Telescoping extension pan handle. We defy you to get anything but the smoothest, most efficient operation out of this tripod beauty.



PROFESSIONAL JUNIOR TRIPOD—Friction Type

Handles all 16mm cameras, with or without motor. Also 35mm DeVry, B & H Eyemo with and without motor, and 400' mogazines. Tripod base interchangeable with Professional Junior gear drive head. "Baby" tripod base and "Hi-Hot" base available.

If you work with film... for Studio, Newsreel, Commercials, Business, Industrial or Home Movies—it will pay you to get to know us. The country's foremost professionals depend upon our portable, versatile, adaptable equipment.

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We Design

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We Calibrate Lenses Precision "T"

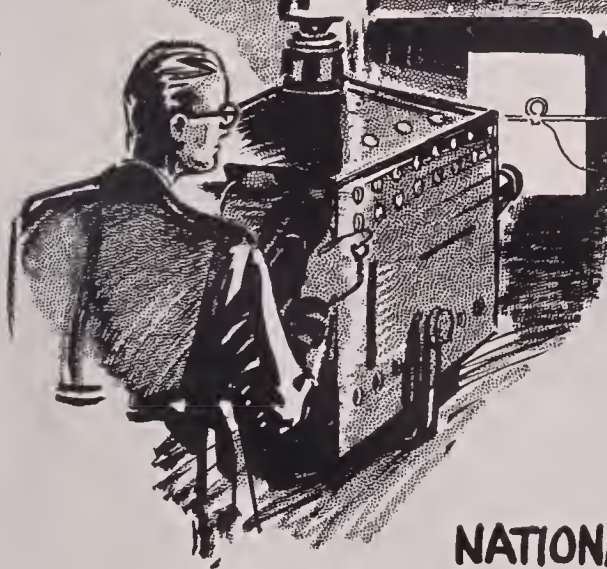
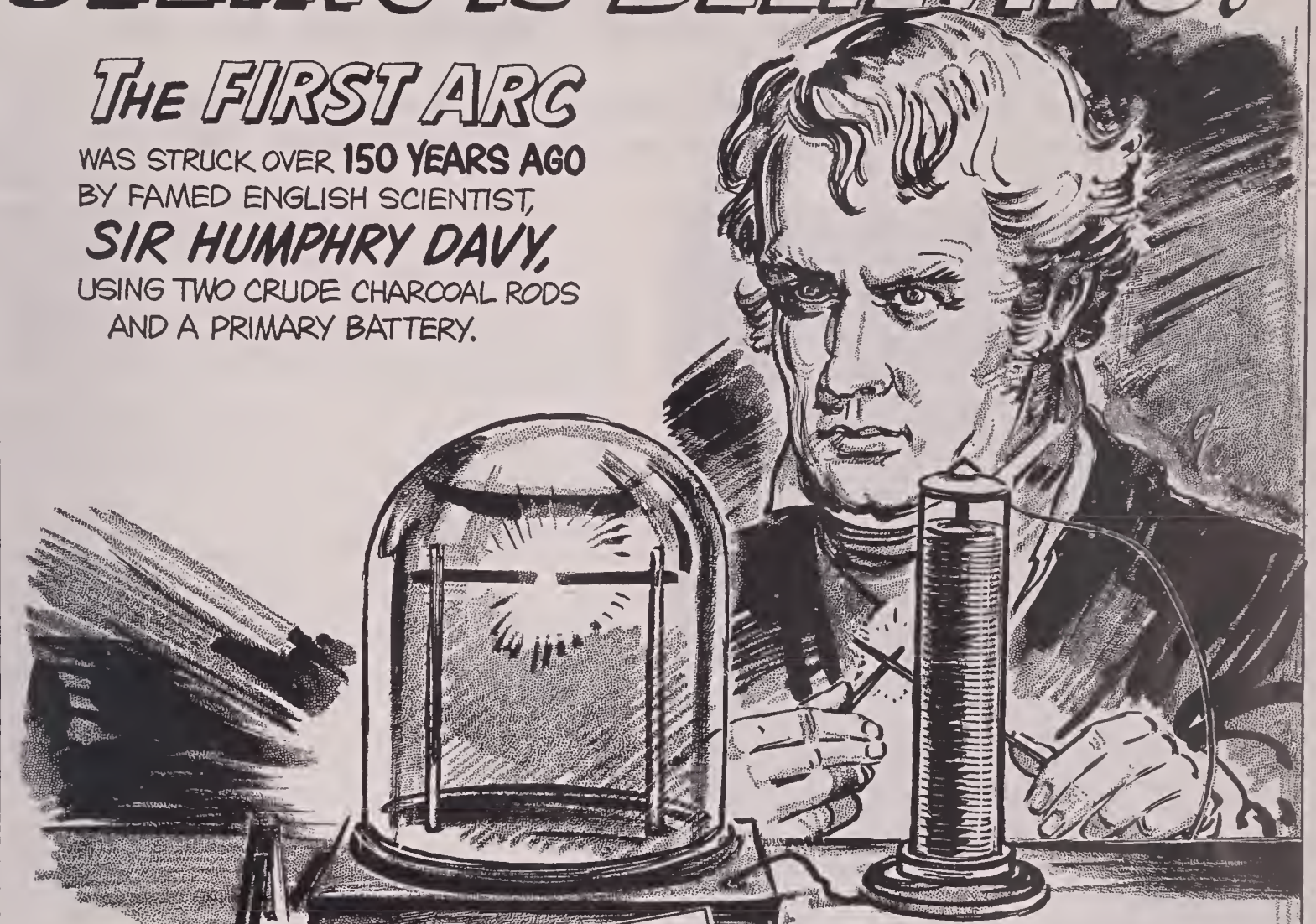
STOP CALIBRATION of all type lenses, any focal length.

Our method is approved by Motion Picture Industry and Standard Committee of SMPTE. For proper exposure density, it is important that you have your lens "T" stop calibrated. Lenses coated for photography. Special TV coating. Rapid service.

SEEING IS BELIEVING!

THE FIRST ARC

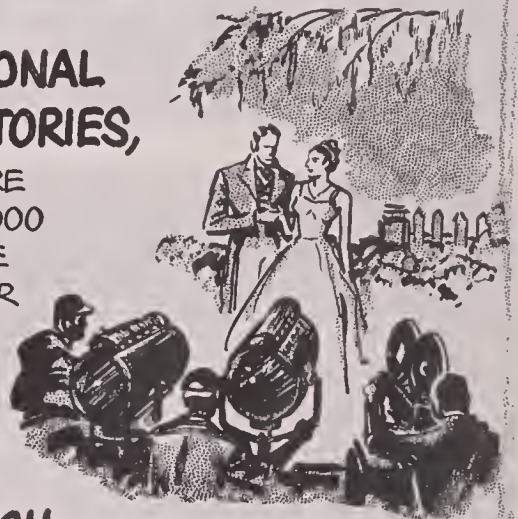
WAS STRUCK OVER 150 YEARS AGO
BY FAMED ENGLISH SCIENTIST,
SIR HUMPHRY DAVY,
USING TWO CRUDE CHARCOAL RODS
AND A PRIMARY BATTERY.



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IN NATIONAL CARBON'S LABORATORIES,

EXPERIMENTAL CARBONS ARE
OPERATED AT MORE THAN 2000
FOOTCANDLES PER SQUARE
MILLIMETER...MUCH HIGHER
THAN THE APPARENT
BRIGHTNESS
OF THE SUN!



NATIONAL CARBON RESEARCH PAYS OFF IN THE DEEP
SET PENETRATION, BROAD COVERAGE, SHARP SHADOWS AND RELATIVE
COOLNESS THAT RESULT FROM THE HIGH EFFICIENCY AND SMALL
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Set Lighting Innovations Mark The Photography of '5000 Fingers of Dr. T.'

Frank Planer used reflected, ultraviolet, and fluorescent light in revolutionary new ways in photographing Kramer's fantasy film.

By ARTHUR ROWAN



A FANTASTICALLY CREATIVE masterpiece of wild imagination has opened the eyes of all Hollywood—eyes which over a long period have become accustomed to spectacle in virtually every shape, shade and form.

The picture in question is the Kramer Company's musical extravaganza in Technicolor, "The 5000 Fingers of Dr. T.," conceived as an entirely new and vital approach to entertainment via movies.

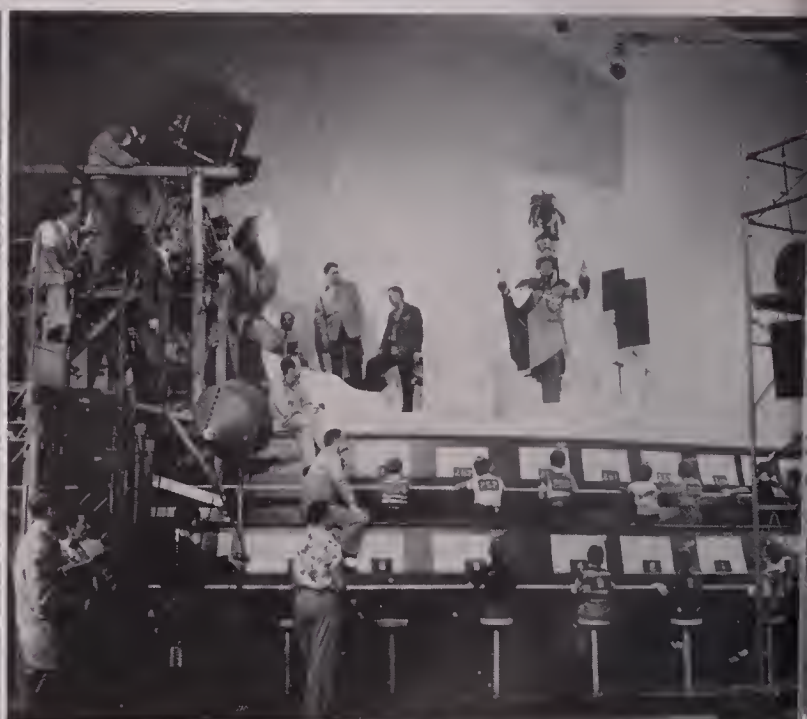
Director of photography Frank Planer, ASC, added a new touch to the filming of "5000 Fingers" when he devised a means of changing lighting and color before the very eyes of the moviegoer by interspersing use of ultraviolet and fluorescent light. Another innovation was the use of the new cone lights, developed by Columbia Studios' electrical department and described in *American Cinematographer* for June, 1952 (Pp. 248). Cone lights are said to produce the broadest and most distant "shadowless" light ever attempted in motion picture production. Planer found them made to order for lighting the sets of this production.

"The 5000 Fingers of Dr. T." comes to the screen as a vision, the dream world of a nine-year-old boy. It is painted his way, not Rembrandt's way. The sets are crookedly fantastic as a small boy would draw them. The entire picture is

FILMING A CLOSEUP of Hans Conreid for "5000 Fingers of Dr. T." Here director of photography Frank Planer uses his famous "Houdini" eye-light on Conreid as the camera rolls for the scene.



GENERAL VIEW of the piano courtyard scene, said to be largest ever constructed in Hollywood, shows the lighting pattern followed by cameraman Planer. The cone lights may be seen mounted overhead as well as on floor standards. Planer and his camera are on parallel at left.



A CLOSER LOOK at same set. Hans Conreid (Dr. T.) is being filmed in up directing his boy piano pupils seated at giant keyboard. Here, cone augmented by Brutes illuminate the scene. Wall of set reaches to ceiling, is made entirely of white muslin.

wildly imaginative, as only a small boy can imagine. And contributing most effectively to the overall pictorial effect is Frank Planer's unique lighting for the Technicolor photography.

Briefly the story concerns a typical American boy whose mother has her heart set on him becoming a piano virtuoso. His teacher is Dr. Terwilliker (Dr. T.) who shares the mother's view that the lad will learn to play the piano, "even if I have to keep him at that keyboard forever!" One day when the lad would rather be outdoors playing baseball than practicing his piano lessons, he falls to daydreaming. Dr. Terwilliker becomes an ominous ogre with 500 little boys trapped in his vast piano courtyard. Here the boys are destined to sit at the giant keyboard practicing 24 hours a day, 365 days a year—5000 fingers practicing the scales in unison.

The lad seeks to escape from Dr. T, and what he encounters in weird and fantastic dream situations makes for one of the most entertaining pictures of the year—and made for Frank Planer perhaps the most challenging assignment in color photography of his entire career.

To begin with, Planer faced something radically new in sets from the standpoint of lighting. According to him, "5000 Fingers" utilizes more sets than any picture in his recollection; at one time sets for the production occupied every sound stage on the Columbia lot.

Largest set in the film and one of the biggest ever to grace a motion picture screen was the giant piano courtyard of Terwillikerland, which occupied all of stages 8 and 9 at Columbia Studios. Its biggest feature, of course, was the longest piano keyboard ever built.

Stretching the length of the immense courtyard which featured weird staircases, entrances to bottomless dungeons and topless staircases, the piano completely dominates the scene. The courtyard set, one of the costliest ever built on the Columbia lot, was constructed mostly of battens covered with white muslin, 3500 square yards of it, instead of the conventional wallboard. The reason, of course—economy. But this placed a tremendous burden on director of photography Planer, for unlike with sets of solid construction, he faced innumerable problems in lighting. The muslin, being translucent, precluded placing lights in rear of the sets, unless certain areas were carefully goboxed or backed up with wallboard flats, black

backing material or both. In lighting the narrow staircases, special cutouts were mounted before the lamps in order to funnel the beam of light so it wouldn't strike the muslin covering of the sets and thus reveal the flimsy construction.

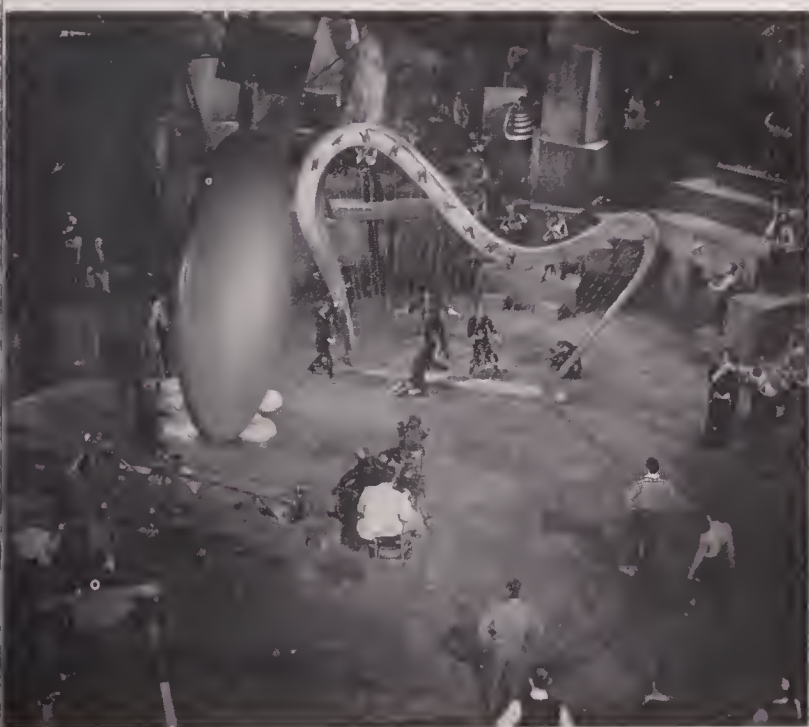
The lighting equipment Planer used is one of the interesting highlights of the production. The cone lights, which Columbia lighting engineers had just introduced for test purposes, were used in large scale for the first time in "5000 Fingers." Planer had observed them during the tests, decided they were the ideal light source for illuminating the tremendous areas of the larger sets. The cone lights give a reflected illumination of soft, "shadowless" quality, are capable of lighting larger areas than most other type set lighting units, and greatly reduce rigging and maintenance costs. In all Planer used 24 cone lights and 6 arcs (Brutes) for set lighting.

Hydraulic parallels were widely used, both for camera and key lights. These proved most ideal whenever camera position was changed; the lamp parallels were simply rolled to another position and the platform lowered or elevated according to the key light height desired. In many cases, the hydraulic parallel proved a better mount for the camera than a crane because of the greater height range. This was especially true when filming on the huge piano courtyard set which required shooting from great heights.

The most challenging problem, of course, was how to get detail and modeling into the all-white muslin covered sets. Although the contour of walls, staircases and other details were readily apparent to the eye, no detail had been emphasized through painting of the sets. This was left to Planer, whose challenge was to so light each set that details were brought out with contrasting shadows, and by delicately shading the light on set walls and background to give the desired separation. The scenes on this set were perhaps the only ones filmed in full scale lighting and embracing the complete range of color.

When the company moved to the dungeon and the Mound Country sets, both photography and lighting assumed a completely new pattern. Here the boy's experiences in attempting to escape his dilemma were staged. Pointing up the mood were the dark, low-key sets, the eerie mood lighting contrasting with the metallic coloring of the mouldy characters in the

(Continued on Page 42)



ASTIC dungeon scene involved tricky low-key lighting, use of ultra-violet and fluorescent light for weird effects. As with most scenes in this picture, action on this set was generally shot with camera on crane and elevated.



TOMMY RETTIG flees from the terrible butterfly men on this set of the fabulous Mound Country. Planer used eerie green light and grey smoke to give the scene the desired awesome effect. The camera, mounted on crane at left, followed the action in closeup. Cone lites and arcs supplied illumination.



FIG. 1—Remote control motor drive is attached to the Mitchell BNC at point of lens knob on side of camera opposite the finder. Motor is a split-phase, high-torque, low-inertia unit designed for the installation.

Servo Mechanism For Remote Control of Mitchell BNC Lens and Finder

By JOHN D. McCULLOUGH

Camera Engineer, Columbia Pictures Corp.

LAST MONTH Frederick Foster described some interesting methods that have been developed in recent years to facilitate automatic or remote control of lens and finder of motion picture cameras when making follow-focus shots. More recently a Servo motor-driven remote control for the Mitchell BNC camera has been developed by John D. McCullough, Columbia Pictures camera engineer, which he describes in the following article.—EDITOR.

THE SCIENCE OF Servo Mechanisms concerns itself in this application with getting a lot of work done at the output end of a system with a minimum of manual work at the input, and with an accurate position relationship maintained.

The nature of the mechanical design of the Mitchell BNC camera is such that efforts thus far to control the lens focus and finder focus and parallax through use of hydraulics, selsyns, flexible cables, etc., have met with little success.

The gear train, lens barrel friction, finder cam, finder lead screw and finder spring loading all contribute to a friction drag which on the camera tested required a torque of 50 inch ounces before the system would move.

The approach to the Servo Mechanism specifications was to add to this torque requirement an arbitrary maximum speed for focus change requirements. This was established at one revolution at the lens in four seconds; a figure which will handle most focus change problems with a generous margin.

The complete system consists of the hand control (Fig. 2), carried remotely from the camera by the assistant, the motor unit which couples to the camera (Fig. 3), the electronic amplifier, and necessary connecting cables.

In the basic Servo Mechanism circuit, the hand control potentiometer and the camera unit potentiometer are used to generate a low voltage position error signal when the manual control is moved. The motor is stationary when the potentiometer sliders are at a null point. With the least condition of unbalance the resulting voltage is amplified and supplied to the variable winding of the motor in correct phase to drive it in a direction to cancel the error.

The motor is a split-phase, high torque, low inertia unit designed for this type of application. One winding is supplied continuously with 110 volt 60 cycle and the other winding is supplied from the amplifier circuit as outlined above. The motor effects a cancellation of the potentiometer error

(Continued on Page 37)



FIG. 2—In the hand control, the dial is identical with that on the camera; three turns of control knob is equivalent to approximately 330° turn of lens diaphragm.



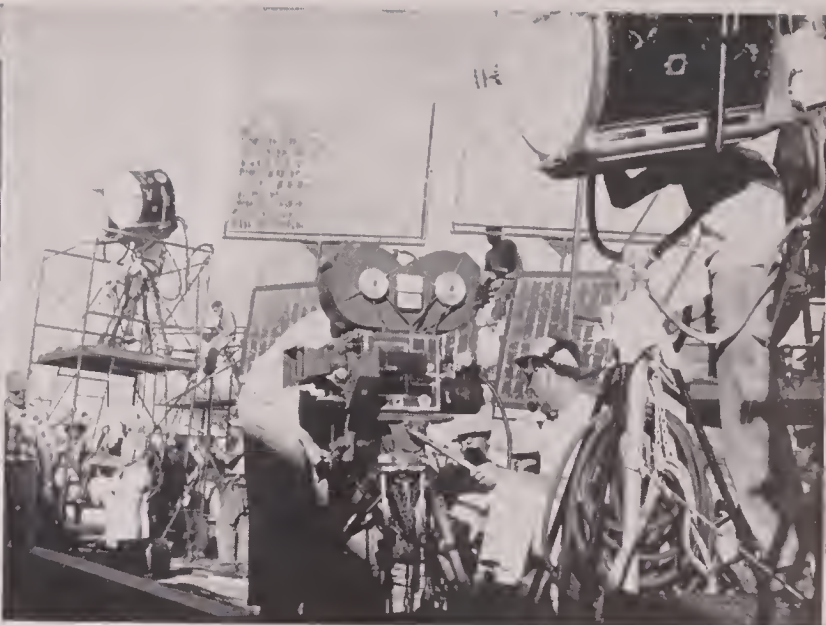
FIG. 3—Motor unit which couples to the camera and actuates the lens control knob. When mounted, it appears as shown above in Fig. 1.



FIG. 4—The fine adjustment knob of camera lens (lower left) is braced to fit the serrated output fitting of the servo motor unit shown opposite in Fig. 3.



SCRIMS of gauze or netting are an important adjunct to filming exteriors in sunlight. As shown here, a scrim placed out of camera range between subject and sun, breaks up harsh light of the sun.



REFLECTORS are a must on outdoor shots where booster lights are not available. Their function is to throw light into shaded areas of the set. Often both reflectors and booster lights are used, as shown above.

Techniques For Filming Exteriors

Some of the basic practices which contribute to successful outdoor photography are explained here for the student of cinematography.

By CHARLES LORING

THE PROBLEMS ENCOUNTERED in the shooting of an exterior motion picture sequence arise, paradoxically enough, from the rather over-abundant generosity of Nature. That is to say, our main concern in outdoor filming is not so much to secure the basically necessary photographic elements (light, backgrounds, etc.), but to *control* these elements that have been so lavishly placed at our disposal.

In modern professional practice, a substantial amount of exterior sequences are shot inside sound stages because of the firmer control the technician can exercise over the mechanical factors of photography. However, for the semi-professional producer, the outdoors offers an infinite number of perfect photographic backgrounds, a strong and constant source of light, and infinite room in which to stage action and place equipment.

Ways and means of controlling these elements are basic, and once learned, can be followed consistently with good results. Taking for granted that the reader knows these fundamental techniques, we shall discuss some of the finer points of photography necessary to the filming of exterior sequences.

Granted that there are many factors that influence the overall excellence of exterior cinematography, it can be said with emphasis that the most important single influence on general quality is *correct exposure*. Even with present-day wide-latitude emulsions and modern methods of processing geared to compensate for faulty exposure, the fact remains that a perfect scene results only when the exposure has been calculated "on the nose."

In order to achieve this result, the cameraman must consider, not only the mechanical requirements of his scene, but *the particular kind of processing which will be given his film after exposure*. For this reason, he will be wise to run tests at standard exposures and send them off to the lab for processing in order to find out what is the standard of development for that particular lab. No two laboratories process film in exactly the same way, and the cameraman must make inquiries in order to adjust his exposure techniques (as well as his own evaluation of the film's speed) to the particular lab that is processing his film.

A good many novice cinematographers have asked the question: "What



CAREFUL use of a good meter in determining exposure insures consistently good photography throughout the picture. Here cameraman takes reading of incident light with a meter made for the purpose.

do you expose for in the scene?"—and they seem intent upon finding a rule to follow. Obviously, no one rule could possibly cover every situation, but in general we advise *exposing for the most important element in the scene*. Another rule that is an old standby of cameramen is: *Expose for the shadows and let the highlights take care of themselves*.

Actually, neither of these rules of thumb should be taken too literally—nor do they apply in every case. The basic problem (within the latitude of the film) is to expose in such a way that the light areas are not *overexposed* and the dark areas are not *underexposed*. This depends partially on careful selection of film emulsion, but even more so upon control of the amount of light that reaches the film.

Very often, in using high-speed films, (Continued on Page 42)

1952

BOX SCORE

79

A. S. C.
CAMERAMEN

filmed

290

HOLLYWOOD
FEATURE FILMS

Freulich, Neuman

OVER 300 FEATURE FILMS were produced in Hollywood during 1952. Of these, 290 were photographed by 79 ASC cameramen. Topping the list in number of feature film assignments are Henry Freulich, Harry C. Neumann and Ernest Miller—each of whom directed the photography of eleven Hollywood productions, indicating these three men were among the busiest cinematographers in Hollywood during the past year.

Lloyd Ahern

"The Silver Whip," Fox.

John Alton

"Mr. Congressman," MGM.
"Apache Trail," MGM.
"Battle Circus," MGM.
"Thirteenth Man," Ben-Bo Prod.
"The San Quentin Story," Swartz-Doniger.

Arthur Arling

"The Farmer Takes A Wife," Fox.

Lucien Ballard

"Don't Bother To Knock," Fox.
"Night Without Sleep," Fox.
"Baptism Of Fire," Fox.
"The Number," Fox.
"The Desert Rats," Fox.

George Barnes

"Famous," Para.
"War Of The Worlds," Para.
"Road To Bali," Para.
"Little Boy Lost," Para.

Joseph Biroc

"Red Planet," Ind.
"The Twonkey," Oboler.
"Loan Shark," Ind.
"The Glass Wall," Shane-Tors.
"Bwana Devil," Oboler.
"The Tall Texan," Woods.
"Harness Bull," Sequoia.

Charles Boyle

"Untamed," U-I.
"The Texas Man," U-I.
"City Beneath The Sea," U-I.
"Roughshod," U-I.
"Column South," U-I.
"The Stand At Apache River," U-I.

William Bradford

"Barbed Wire," Col.
"Port Sinister," Amer.
"Wagon Team," Autry.
"Blue Canadian Rockies," Autry.
"Winning Of The West," Autry.
"On Top Of Old Smoky," Autry.
"Goldtown Ghost Riders," Autry.
"Pack Train," Autry.

Faye Browne

"Rough, Tough West," Col.
"Kid From Broken Gun," Col.

Robert Burks

"Maru Maru," W.B.
"The Desert Song," W.B.
"I Confess," W.B.
"The Grace Moore Story," W.B.

Ellis W. Carter

"Rainbow 'Round My Shoulder," Col.
"Outlaw Women," Ind.

Charles G. Clarke

"Sixty Saddles For Gobi," Fox.
"Stars And Stripes Forever," Fox.
(Untitled Western), Fox.

Wilfrid Cline

"She's Working Her Way Through College," W.B.
"The Story of Will Rogers," W.B.
"By The Light Of The Silvery Moon," W.B.
"April In Paris," W.B.

Stanley Cortez

"Models, Inc.," Ind.
"Abbott and Costello Meet Captain Kidd," Woodley.
"China Gold," Wisberg-Pollexfen
"The Neanderthal Man," Wisberg-Pollexfen.

Edward Cronjager

"Cry of The Swamp," Fox.
"Condor's Nest," Fox.
"Bloodhounds of Broadway," Fox.
"Powder River," Fox.

Floyd Crosby

"Man Crazy," Security Prod.

William Daniels

"Glory Alley," MGM.
"Pat and Mike," MGM.
"Plymouth Adventure," MGM.
"Thunder Bay," U-I.
"Never Wave At A WAC," Ind. Artists-RKO.

Clyde DeVinna

"The Jungle," Voltair Prod.

George Diskant

"Kansas City 1-1-7," Assoc. Players.
"The Bandits of Corsica," Edw. Small.

Edwin DuPar

"The Miracle of Our Lady of Fatima," W.B.
"The Springfield Rifle," W.B.
"She's Back On Broadway," W.B.
"The System," W.B.

Daniel Fapp

"Jumping Jacks," Par.
"Pleasure Island," Par.
(Untitled), Par.

George Folsey

"The Million Dollar Mermaid," MGM.
"The Band Wagon," MGM.

Henry Freulich

"Junction City," Col.

"Prince of Pirates," Col.

"The Last Train From Bombay," Col.

"The Pathfinder," Col.

"Jack McCall, Desperado," Col.

"Target—Hong Kong," Col.

"Serpent of the Nile," Col.

"Slaves of Babylon," Col.

"Ambush At Tomahawk Gap," Col.

"Flame of Calcutta," Col.

"Conquest of Cochise," Col.

Lee Garmes

"This Man Is Mine," RKO.

Maury Gertsman

"Red Ball Express," U-I.
"The Girl Across The Street," U-I.
"It Grows On Trees," U-I.
"The Great Companions," U-I.
"Sioux Uprising," U-I.
"Lone Hand," U-I.
"The Golden Blade," U-I.

Alfred Gilks

"See How They Run," MGM.

Irving Glassberg

"Claim Jumpers," U-I.
"Sally and St. Ann," U-I.
"The Black Castle," U-I.
"Gun Hand," U-I.
"Mississippi Gambler," U-I.

W. Howard Greene

"Swords Before The Mast," Edw. Small.
"Tombstone Trails," Edw. Small.

Burnett Guffey

"Assignment Paris," Col.
"Posse," Col.

Carl Guthrie

"Francis Goes To West Point," U-I.
"The Riding Kid," U-I.
"Bonzo Goes To College," U-I.
"The Jazz Singer," W.B.
"Night Flowers," U-I.
"Stopover," U-I.

Russell Harlan

"The Ring," Ind.
"Ruby Gentry," Ind.

Sidney Hickox

"Alexander, The Big Leaguer," W.B.

Winton Hoch

"Cattle Kate," U-I.
"Return To Paradise," Aspen.

James Wong Howe

"The Fighter," G&H.
"Come Back Little Sheba," Para.
"Main Street To Broadway," Cinema Prod.

and E. Miller Top Scorers With 11 Films Each

Other directors of photography were equally busy. Whereas Freulich's, Neumann's and Miller's assignments were low-budget, short-shooting-schedule productions, many cameramen on contract with major studios were, on the average, busy behind their cameras 40 to 48 weeks out of the year's 52 by virtue of the longer schedules of the higher budget productions which they filmed.

This survey, of course, does not include ASC

men engaged in photographing films for television—a field which saw increasing activity during 1952. Nor does it include ASC members located outside Hollywood, such as Jack Cardiff and Freddie Young, of England, and Joseph Brun and Don Malkames of New York City, all of whom were unusually active during the year. ASC cameramen and their feature film assignments for 1952 are listed below.

Harry Jackson

"Way Of A Gaucho," Fox.
"Pony Soldier," Fox.

Ray June

"Eagle On His Cap," MGM.
"Sky Full Of Moon," MGM.
"Sombrero," MGM.
"Code Two," MGM.
"A Slight Case of Larceny," MGM.

Milton Krasner

"Dream Boat," Fox.
"Monkey Business," Fox.
"Bagdad on the Subway," Fox.
"Dream Wife," MGM.
"Taxi," Fox.

Charles Lang

"Sudden Fear," RKO.
"Salome," Col.

Joseph LaShelle

"Les Miserables," Fox.
"Something for the Birds," Fox.
"My Cousin Rachel," Fox.

Ernest Laszlo

"Stalag 17," Par.
"Panic Stricken," Thor.
"Scared Stiff," Par.
"The Star," Thor.
"Houdini," Par.
"The Steel Trap," Thor.

Charles Lawton

"The Saber and the Arrow," Col.
"The Happy Time," Col.
"The Outlanders," Col.
"All Ashore!" Col.
"Love Song," Col.

Marcel LePicard

"The Congregation," P.F. Heard
"Jet Job," Mono.
"Plow Jockeys," Mono.

Lionel Lindon

"Caribbean Gold," Par.
"Tropic Zone," Par.
"The Stars Are Shining," Par.
"Rock Grayson's Women," Par.
"Jamaica," Par.
"Here Come The Girls," Par.

Harold Lipstein

"Fearless Fagan," MGM.
"The Desperate Search," MGM.
"Cry Of The Hunted," MGM.
"Fast Company," MGM.
"A Steak For Connie," MGM.

Joseph MacDonald

"What Price Glory," Fox.
"The Full House," Fox.

"Niagara," Fox.

"Blaze of Glory," Fox.

"Nearer My God To Thee," Fox.

Peverell Marley

"Military Policeman," Par.

Ted McCord

"Danger Forward," W.B.
"Stop, You're Killing Me!" W.B.
"Cattle Town," W.B.

William Mellor

"Carbine Williams," MGM.
"Letter From The President," MGM.
"The Naked Spur," MGM.
"Give A Girl A Break," MGM.

Russell Metty

"Scarlet Angel," U-I.
"Against All Flags," U-I.
"Yankee Buccaneer," U-I.
"Magic Lady," U-I.
"Seminole," U-I.
"Man From Alamo," U-I.
"Flame of Timberline," U-I.
"The Prince of Bagdad," U-I.

Ernest Miller

"Dead Man's Trail," Mono.
"Hellgate," Comm. Films
"Barbed Wire," Mono.
"The Maverick," Mono.
"Battle Zone," Allied Artists
"Guns Along the Border," Mono.
"Hired Guns," Mono.
"Star of Texas," Allied Artists
"Stranglehold," Mono.
"The Homesteaders," Mono.
"The Copperheads," Mono.

Victor Milner

"Jeopardy," MGM.

Hal Mohr

"The Member of the Wedding," Col.
"The Four Poster," Col.

Nick Musuraca

"Clash By Night," RKO.
"The Difference," Filmmakers-RKO.
"Split Second," RKO.
"The Blue Gardenia," Gottlieb Prod.

Harry C. Neumann

"Wild Stallion," Mono.
"The Rose Bowl Story," Mono.
"Army Bound," Mono.
"Flat Top," Mono.
"Hiawatha," Mono.
"The Royal Mounted Police," Allied Artists
"Son Of Belle Starr," Allied Artists
"Jungle Girl," Mono.
"The Roar of The Crowd," Allied Artists
"Kansas-Pacific," Allied Artists
"Jalopy," Allied Artists

Robert Planck

"Lili," MGM.
"Remains To Be Seen," MGM.
"My Mother and Mr. McChesney," MGM.

Frank Planer

"The 5000 Fingers of Dr. T," Col.
"Roman Holiday," Para.

Ray Rennahan

"Hurricane Smith," Par.
"Pony Express," Par.
"Arrowhead," Par.

George H. Robinson

"Lost In Alaska," U-I.

Charles Rosher

"The Story of Three Loves," MGM.
"Young Bess," MGM.

Harold Rosson

"Three Love Stories," MGM.
"I Love Melvin," MGM.
"Dangerous When Wet," MGM.
"Years Ago," MGM.

Jack Russell

"Sword of Venus," RKO.
"Park Row," Fuller
"Arctic Flight," Mono.
"The Velvet Cage," Ind.
"The Monster From Beneath The Sea," Mutual
"The City That Never Sleeps," Republic

Joseph Ruttenberg

"Because You're Mine," MGM.
"The Prisoner of Zenda," MGM.
"Small Town Girl," MGM.
"Julius Caesar," MGM.
"Latin Lovers," MGM.

John F. Seitz

"Botany Bay," Par.
"The Iron Mistress," W.B.
"Desert Legion," U-I.
"Invaders From Mars," Natl. Pics.

Leon Shamroy

"The Snows of Kilimanjaro," Fox.
"Tonight We Sing," Fox.
"Call Me Madame," Fox.
"White Witch Doctor," Fox.

William Sickner

"Down Periscope," L. Parsons
"Tangier Incident," L. Parsons
"Timber Wolf," Allied Artists

William Skall

"Everything I Have Is Yours," MGM.

(Continued on Page 43)



LIGHTING, composition and camera movement are the three main elements the cinematographer employs to give a film the utmost in production value. Of these, lighting is perhaps the most important single factor. Here skillful lighting of a group points up the mood of the story.



COMPOSITION is simply putting dramatic emphasis of a scene in its proper place. Here camera-man and director check composition of a closeup by means of the camera finder.

The Contribution Of Photography To 'Production Value'

By HERB A. LIGHTMAN

THE TERM "production value" conveys certain connotations of lavishness which motion picture critics like to translate into superlatives such as "gigantic," "colossal," and "stupendous." Reviewers for film trade papers consistently speak of this picture or that as having great production value. What they usually mean when they speak thus of a film is that the settings, costumes, crowds of extras, and star-studded cast look as if they cost a lot of money.

Actually, the expression is somewhat more elusive to define than this example would indicate—for it represents an overall impression of quality conveyed by a sum total of the elements that go into production. This impression does not necessarily depend upon how much money was spent on the picture; in fact, the effect is all too often exactly the opposite.

When one stops to reflect that American audiences go to the movies to gain a stimulating, if vicarious, emotional experience, it should be evident what elements are most effective in gaining approval for a specific film. These elements include a good story, strong direction, and effective camera



CAMERA MOVEMENT, properly motivated, adds a fluent quality to a production, and makes possible production economies by compressing several takes into one continuous take.

work—but they do not necessarily include spectacular settings, extravagant wardrobe, or the inevitable "cast of thousands." Rather, an overabundance of such factors serves only to clutter the film and prevent its impact from registering fully upon the audience.

Audiences have a right to expect their films to be well-mounted. Yet there is no need to make the mounting of the film an end in itself, for in the final analysis, the trimmings of a picture should serve to enhance the story and keep the continuity moving ever forward.

(Continued on Page 41)

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WHEN ANN SHERIDAN presented "Oscar" to Arthur Miller, ASC, for the photography of "Anna And The King Of Siam," (best black-and-white photography, 1946) it marked the third Academy Award for Miller for cinematography.

45 Years In Cinematography

Three-time "Oscar" winner Arthur Miller recalls some of the significant developments that influenced cinematography.

By HILDA BLACK

"ARTHUR MILLER, one of the industry's veteran cinematographers, has brought high honor to the profession of which he is a part. Entering motion pictures in 1908, Miller has for forty-five years contributed much toward making the film industry great." With these words, American Society of Cinematographers' president Charles G. Clarke lauded one of the Society's most distinguished members on the occasion of its testimonial dinner last month in his honor.

It was an occasion for reminiscing, too, for Arthur Miller had come into the industry in its formative years and had worked with and had even trained many of the cinematographers who had gathered to pay him tribute.

The story of the motion picture industry from the cinematographer's viewpoint, as traced by Arthur Miller, is rich, colorful, sometimes amusing, and nearly always incredible. With Miller, the story begins in 1908 when he went to work for the Crescent Film Company in Brooklyn—a firm which later became known as the New York Motion Picture Company and which was one of the original "independents."

(Continued on Page 31)

IN A MORE RECENT assignment, Miller lines up a shot with a 20th Century-Fox camera, which company developed when advent of sound demanded a more silent camera. Waiting her turn before the lens is Gene Tierney.



THE PATHE was the standard camera of the "industry" back when Arthur Miller (extreme left) began his career as a cinematographer. Second cameraman Geo. Rizard stands behind another Pathe in center. Photo was made while company was shooting a western back in 1919.



THE BELL & HOWELL camera became the favorite during the 20's. Here Miller is shooting a closeup of Richard Barthelmess posed behind a hastily contrived prop gate, while director George Fitzmaurice watches the proceedings.



ARTHUR MILLER filmed most of Shirley Temple's pictures while she was a child star, using a Mitchell camera which replaced the old reliable but noisy Bell & Howells.



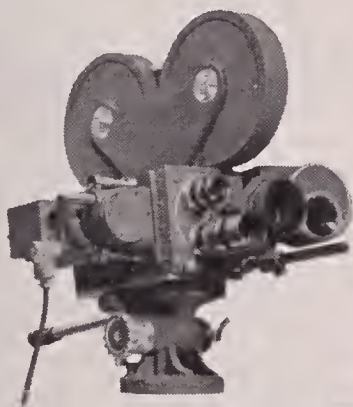
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Howard Cagle
shooting skiing
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ALL CINE CAMERAISTS respond naturally to the urge to shoot new and scenic vistas, regardless how the footage may be used later. Such footage, when deleted in editing, need not be discarded forever. Save it and file it away for possible future use—by you or some brother cine filmer.

Save Those Odd Shots — They're 'Money In The Bank'

Carefully catalogue and file all those odd shots for possible future use; you never know when a discarded shot may save the day by completing a sequence for a new film.

By JOHN FORBES

ALMOST EVERY CINE AMATEUR who edits his films seriously, deletes footage which has no pertinent value to the subject at hand. Especially is this true if the film is a vacation or travel record. All of us, when shooting movies of a vacation trip will make two or more shots of the same subject, using the best shot in the finally edited picture. Then there is the tendency to make random shots of interesting scenes and subjects simply because they appeal especially to your sense of pictorialism at the time.

With some amateurs, such footage is waste material and eventually is discarded. This is not only extravagance,

but shows a lack of imagination. For these odd shots invariably can prove of unusual future value. One never knows when he will have need for a scene filmed a year earlier. Only when editing a picture does the need for previously filmed shots occur and then the subject invariably is too remote to warrant a special trip to film it. In such a case, it is rewarding to be able to refer to a reel of odds and ends or stock shots, and find a suitable scene to round out a new continuity.

One of the most valuable departments in a motion picture studio is the library of stock shots. These consist of scenic and atmospheric shots made all over the

world, atmospheric long shots made on big sets used in past productions, and an endless variety of cinematic odds and ends — airplanes, fire-engines, fires, ships, boats, city traffic, trains, zeppelins, submarines, explosions, cattle, horses and riders—in fact everything and anything that can be photographed.

When a script calls for an incidental scene of anything of that nature the producer's first thought is to turn to the library and see if there isn't a "stock shot" which can be used for it.

If there is, a great deal of time, trouble and money can be saved by using that shot instead of sending out a camera crew to make the scene specially.

This same expedient can be fully as useful to the amateur as to the professional. In fact, stock shots can sometimes be more useful to the home filmer, since his budget seldom would permit the extra expense of making some incidental scenes unexpectedly necessary for his productions, especially if he had to travel far to get just the one scene.

So one of the best things any amateur can do is to begin to build up a library of stock shots.

Right now is a fine time to start. In most parts of the country spring finds the home filmer with his last season's pictures pretty well cut and titled, while the weather without is scarcely conducive to beginning the new season's campaign.

So why not employ your spare time going through the odd scraps of film left over from the editing of last season's—and the previous season's filming? You are almost sure to find a surprising variety of potentially useful stock shots.

Every time this writer browses through the forgotten footage of past years he manages to unearth scenes the very making of which he has forgotten, but which nevertheless often can be used excellently to fill gaps in more recent efforts.

Next, segregate these odd shots according to subject-matter. Make up one reel (it can begin as a simple laboratory spool) of landscapes; another of rivers; a third of beach scenes; another of boating shots; yet others of trains, planes and so on.

Label each reel with a gummed paper label, preferably protected by a covering of scotch tape, and keep your stock shot reels together, in a handy box or cabinet.

Then when you come to edit your next picture, and find a gap in the continuity which must be plugged, all that is necessary is to reach for the appropriate

(Continued on Page 36)



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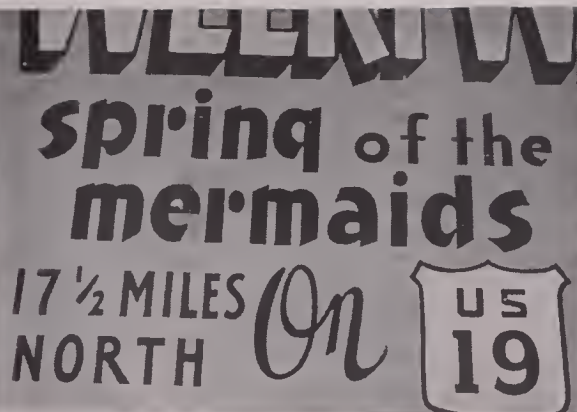
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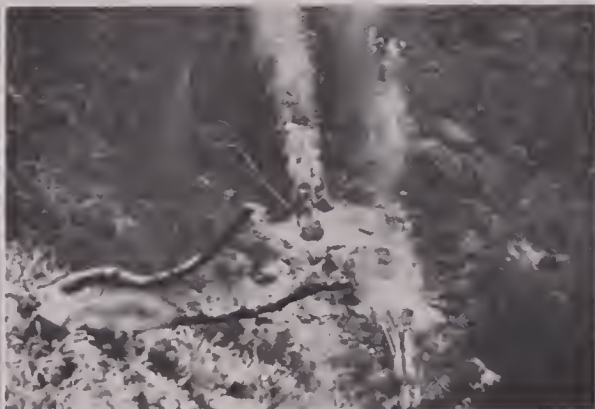
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Plan Your Scenes In Sequence

Before you start to film, think the action through scene by scene. An eye for detail and orderly shooting coupled with a keen sense of values make sequencing easy.

By LEO J. HEFFERNAN

INvariably, the framework of the average amateur film consists of a number of sequences which are devised and photographed in such a way that the film can be edited into a homogenous whole. A skillful filmer starts with an idea, often nebulous in his mind, and, throughout the shooting schedule, sticks to the point in his choice of movie material and method of presenting same. The idea eventually becomes a series of well-planned sequences building up to a climax, after which the film is ended as quickly as possible.

Some moviemakers do not fully understand what is meant by the term "sequence." The dictionary offers sev-

eral definitions and there is just one which fits moviemaking—"A series of things following in a certain order or succession." Thus, a sequence, in filming parlance, means a series of scenes following in a certain order or succession; but that doesn't tell all of the story, does it? What, exactly, is a *movie* sequence?

Well, a sequence is an integral part without which the movie would not be complete. It consists of a number of scenes that present various aspects of a scene, event, or action; whatever it is that the movie is revealing at that point in the story. It covers just one line in the framework of the movie, but it is

divided into a number of shots for the best cinematic effect. Because it is only one small part of the movie, amateur filmers are sometimes careless in planning sequences so that, when it comes time to edit a film, they find that they are without some essential shots.

In shooting photoplays, a script is prepared which breaks the film down into sequences, and the sequences are broken down more specifically into long shots, medium shots, closeups, etc. The whole shooting schedule is written down, or should be, and if the script is well planned, it can be followed blindly, since all of the scenes and effects have been visualized in advance. If there is ample cross-shooting, the film editor should have nothing to complain about when he is called upon to put the film together.

Unfortunately, it is not often that an amateur works from a script even when shooting amateur photoplays, so that it is usually a case of on-the-spot planning; and this approach always prevails when he is making scenes for a travelogue. It would be impossible to prepare a shooting schedule to cover a place of interest being visited for the first time. How then can a cameraman assure himself of well-integrated sequences in making a travel or vacation film?

Well, let us suppose that the place being visited is Weekiwachee Springs,



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Florida. There, not only does the local underwater show provide spectacular material for color cameras, but the management is so camera conscious that lens settings both for diaphragm and distance, as well as film speeds, are announced over the public address system as the show is in progress! A movie-maker is almost certain to come away with excellent footage of the swimming show unless, in the excitement, he forgets to remove the lens cap.

The amateur who approaches this subject without first *planning* his camera attack will probably start with a title, "Underwater Show—Weekiwachee Springs," and then, bang! on will come the spectacular footage without any provocative introduction or build-up. This is not good cinematic form. His screen

audience should be made to lick their lips for a time before the climactic scenes appear on the screen. Instead of a starved, single-punch sequence, wouldn't it be better to create interest in the underwater show by starting the sequence seventeen miles away from Weekiwachee as described in the pictures and captions on this page.

To do this, it is usually necessary to spend more time at a place than does the average tourist because it is advisable to make at least one complete tour of inspection without taking the camera out of its case—or if shots *are* made, they should be of such a nature that they will surely fit into any sequence pattern filmed later. Usually, I spend two days in shooting a worthwhile place

(Continued on Page 38)

ABOVE PHOTOS suggest a scene by scene pattern for a home movie documentary of a visit to Weekiwachee Springs, popular Florida resort:

1—Make shot of billboard for your main title.

2—A closeup of billboard will increase interest in what is to come. 3—Make a dolly shot of family car entering resort, or shoot with camera on tripod if second car is unavailable for camera.

4—Closeup of sign builds interest. 5—Make medium shot showing swimmers putting on swim fins. Follow this with shots of visitors entering underwater theatre. 6—Start show sequence with shots of swimmers entering water and swimming to formation in middle of lake. 7—Include shots of girls made from underwater theatre window.

8—Make shots of start of show as swimmers dive through curtain of bubbles. 9—Make shots of ballet numbers. 10—Swimmers descend 90 feet to underwater cave. 11—Include shots of girls feeding fish underwater; 12—of girl drinking a coke underwater. 13—Be alert for comedy shot possibilities. 14—Include several shots of swimmers maneuvering in water, above and below surface.

15—Close picture with shots of swimmers rising to surface, then submerging to curtsy to audience in underwater theatre.

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45 YEARS IN CINEMATOGRAPHY

(Continued from Page 24)

The space rented by Crescent Film Company was its studio in the daytime, but became a beer garden at night. In view of today's mammoth studios, this may sound ludicrous but it was not unusual for that era. This was before the advent of artificial lighting, and all shooting had to be done by natural light.

"The cameramen were the real filmmakers," says Miller. "In fact, the movie *was* the cameraman in those days. Not only did we do the actual shooting, we also were our own laboratory technicians. From beginning to end what appeared on the screen was the sole responsibility of the cameraman.

"When we didn't know a bit of business, we had to figure it out for ourselves. We had no historical backlog from which to draw. We learned by experimenting. No rules had been set up and every cameraman was strictly on his own.

"I, for one, asked lots of questions in those days. When I saw any unusual effect that another cameraman had achieved I looked him up and asked him how he got it. Tony Gaudio and Billy Bitzer who was D. W. Griffith's great cameraman, and many, many others contributed to my fund of knowledge by answering questions for me. All I've ever learned about this business has been learned in that way—or through my own experiences."

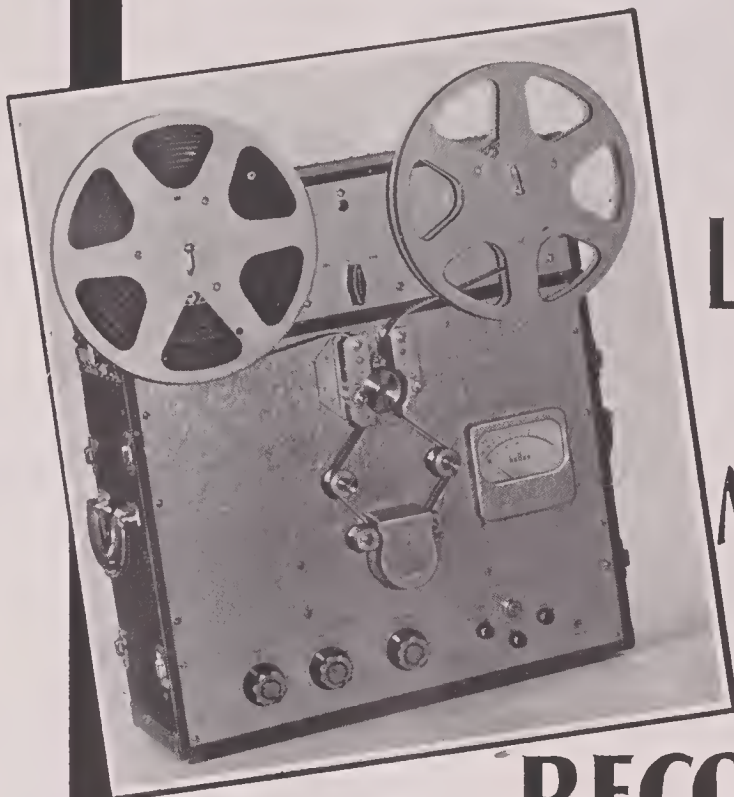
In those early days of picture-making the laboratory was the most important part of any studio set-up, said Miller. The studio, as such, was secondary. Much of the picture was made outdoors, on location, and shooting devices were simple.

"You set your camera," Miller reminisces, "you screwed it down to the floor in whatever position you wanted it—and that was that. There was no moving about, no dolly shots, no striving for this or that angle as in today's pictures.

"Sets were unbelievably simple. Only the things actually handled by the actor were real—all else was painted in. There was a standard format for the set: always a door at the rear toward which the actor eventually walked, thus giving the camera a full figure shot of him. In addition to that one full view, there were two types of foreground shots: One was called French foreground, which cut the actor mid-calf; the other, American foreground, which cut him at the knees. We didn't use closeups at all."

However, a closeup had previously been used in "The Great Train Rob-

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bery." It showed a bandit from the waist up, brandishing two guns, in anticipation it would seem of the much later William S. Hart westerns.

"Don't think the Western films have come into popularity only in the past few years," says Miller. "They have been in vogue almost as long as the picture industry. The New York Motion Picture Company made a one-reeler with James Youngdeer, an Indian who later became one of the early movie stars. Eventually he came to Hollywood and directed pictures for Pathe."

Locations were simple, too. "We travelled everywhere on busses, and all the cameraman's equipment went along—the actors helping to carry it," says Miller. "In those days actors recruited from the legitimate stage felt the new industry beneath their dignity, and therefore disguised themselves when appearing in a movie by wearing some kind of beard, wig, or the like."

"In the early days of movies, the cameraman invested everything he earned in his work and equipment; he bought his own camera, lenses and accessories. We all had our own particular little bundle of tricks, too, and frequently what made one fellow a better cameraman than another was his private collection of lenses. This was before studios had their own departments for making special effects; lap-dissolves, fades, visions, etc., were made right in the camera as the picture was shot."

To protect their pictures from piracy by outlaw film companies, early-day producers created emblems which became a sort of trademark for their product. These were hung prominently on the walls of every set and thus became a pictorial part of every scene. Thus if any part of the picture was pirated by an outlaw company, the trademark visible on the screen revealed the fraud. Later the visible trademarks were abolished in favor of imprinting the company's name along the edge of the film when prints were made.

One of the most restricting elements in early day film production was the lack of a practical artificial light source for photography. When this obstacle was hurdled, a new era dawned for movies.

"The first such lighting that I remember," says Miller, "was Ed Porter's experiments with an arc light that had been taken from a New York street lamp-post. This was mounted in a suitable box and a sheet of bright tin placed at the back for a reflector. The results were highly satisfactory. Within a very short time the use of arc lights to augment daylight became general practice among film makers, and this marked one of the first really important improvements in motion picture photography."

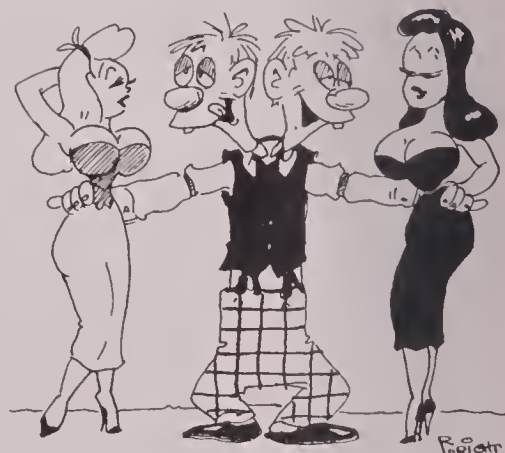
"Not long afterward, another cameraman observing a bright lighting unit then generally used in postoffices, secured one of them for experiment on a motion picture set. Multiple rows of slender tubes gave off a soft, bluish light which was found ideal for motion picture photography, and thus began the use of the now famous Cooper-Hewitt lamps as a lighting source for cinematography."

"With indoor lighting for motion pictures rapidly gaining popularity, other firms developed equipment especially for studio use. One of these was the Wohl Company, on Fulton Street in Brooklyn, which introduced the Wohl Twin-Arcs. Thereafter, other manufacturers developed lighting equipment for the studios. A man named Kleig introduced the now famous "Kleig Lights"—a name that was applied to movie lamps in general for a great many years afterward."

"Following the Kleigs, the Sperry Company introduced the sun arc searchlights. Up until that time we had used only the blue end of the spectrum of our film. Shortly afterward, panchromatic film was introduced, and this plus incandescent lighting now enabled us to utilize the red end of the spectrum, thereby widening the scope of pictorial possibilities in motion picture photography. Thus began the era of incandescent lighting in motion pictures."

Miller recalls that one of the first productions to utilize incandescent lighting exclusively was a two-reeler starring William Collier, Sr., and Mae Busch. It was photographed by Fred Jackman, ASC, for Mack Sennett. That was in 1919. Sennett, the Keystone Comedy king,

(ADV.)



"Girls seemed to avoid me until
I got my KINEVOX"

(*Leading portable synchronous magnetic recorder.)

and one of the most important producers at that time, is credited with building the first enclosed studio.

The first feature production to be photographed entirely with incandescent lighting, Miller recalls, was "Rose of the Rancho," which Lee Garmes, ASC, photographed for First National Studios, about 1924. "Garmes was one of the greatest boosters for incandescent lighting in the business," says Miller.

In the early days of movie making, all cameras were cranked by hand. One of the first things a cameraman had to learn was how fast to turn the camera and to turn it at an even pace. If the pace varied, the action of the players would vary; turning the camera too slow would make them appear walking rapidly if not jerkily on the screen. To point up how cameramen generally were troubled by this, Miller tells an interesting story about Fred Jackman in his search for the answer to correct cranking speed.

Jackman had asked Earl Hines, another old timer, how he timed his cranking. He was told to hold his cranking evenly to sixteen frames per second, and to count seconds by saying "One thousand and one, one thousand and two, etc.," as he cranked. Skeptical of this advice, Jackman decided to investigate for himself. He reasoned that if he could find out at what speed projectionists cranked their machines, he'd have the right answer. So he spent a couple of hours one afternoon in the gallery of a local movie house, sitting close to the projection booth where he could watch the projectionist through the open door. As the projectionist cranked, Fred moved his arm, cranking an imaginary camera in unison. When he thought he had the tempo right, he left the theatre and prepared to crank his camera accordingly on his next picture. What he didn't know, of course, was that projectors were cranked slower than motion picture cameras.

His next assignment ironically enough was on a Harold Lloyd comedy, and the ultra rapid motion which Jackman's slow-cranking gave to Lloyd on the screen, is credited with establishing Lloyd as a new screen comedian. It was the first time that anyone had discovered that comedies could be made funnier when photographed at a lower rate of speed than dramatic pictures. Speeding up action on the screen made the antics of comedians funnier. Projectors in those days were so made that one foot of film travelled past the gate with each turn of the crank, while the film in cameras travelled at half that speed. Dramatic films continued to be cranked at 16 frames per second (until the advent of sound), but comedies were upusually cranked at 12 frames per second.

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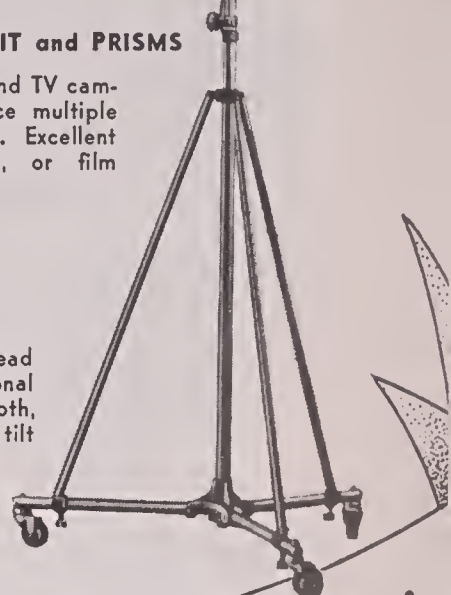
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left:
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Arch Oboler
while filming
"The Twonky"



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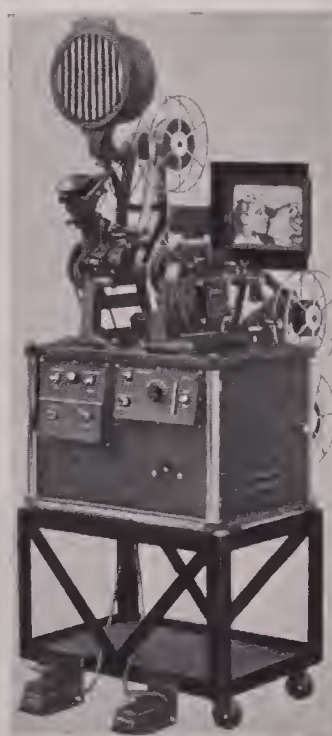
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Cranks eventually went out and when motors were adopted in 1919, Jackman, who was becoming recognized for his unusual special effects, photographed one of the first scenes with the innovation. It was for an air sequence and the camera was fastened to the nose of the plane and operated from switches inside the plane. Motorized cameras were to bring vast changes in photography.

But in Arthur Miller's opinion, the biggest single development in film-making perhaps was the introduction of the cut-back, a technique which involved cutting from one actor to another and then back again. This was introduced around 1911 and is credited to D. W. Griffith. It changed the entire construction of pictures, both in the photography and the editing.

"It introduced a vital personal element into pictures," says Miller. "which formerly they had lacked. It made for warmth and for the first time gave the spectator a feeling of being a part of the scene. It was an unseen element but vitally real. I believe it did more for furthering the progress of motion pictures than any other single factor and, until sound came, was the most progressive step yet made in film production technique.

Still another important accomplishment was the elimination of static in the camera, which was responsible for ruining a lot of film in the old days. Created by the friction of moving parts in the camera, static changed with the weather and was just as unpredictable. A cameraman never knew when he was getting it on his film—only after the film was developed and the tell-tale lightning flashes appeared on his negative. Although many devices were improvised to eliminate static, the trouble was not finally overcome until the introduction by Eastman Kodak Company of X-back coating on motion picture film.

"When sound was added and thus made "talkies" of movies, cinematography suffered a temporary setback. Noise from the camera was picked up along with the dialogue, necessitating the use of large sound-proof booths to house the camera and crew. The booths were not generally mobile and thus the flexibility of the camera was immobilized for a time, but later restored with the introduction of the camera blimp.

"Housed in a sound-proof blimp, which was invented by sound engineer Charles McClay (his son, Howard McClay, is presently motion picture editor of the Los Angeles Daily News) the camera could again be used on the sound stage with all the freedom of the silent-picture days. The first blimps were manufactured by McClay in his own plant, and were first introduced at the old Vitagraph studio. McClay later went

to Warner Brothers where he was employed for many years.

"There are so many improvements in motion pictures, so many things that today seem matter-of-fact that would have astounded us thirty or forty years ago," remarks Miller. "This certainly is a remarkable industry we're in."

One of the most remarkable things, according to Miller's fellow-craftsmen, is that there are men like him to give of his time, energies, and talents to furthering the cameramen's best interests. For today, Miller's main activities center around the Cameramen's Local Union in Hollywood, to which he donates his services.

As a member of the group of early-day cameramen who helped form the Cinema Camera Club in New York City and later joined the west coast group known as the Static Club, it was natural that Miller should become an active member in The American Society of Cinematographers when the two groups merged in 1919.

It was richly-deserved recognition when, at its December meeting in Hollywood, the American Society of Cinematographers paid formal tribute to their fellow-craftsman by honoring him with a plaque—a citation of merit—"in commemoration of his long and brilliant career as a cinematographer and as a leader in his profession."

This was not the first honor bestowed upon Miller, however. For, during his successful career, he has won prestige and acclaim as result of his brilliant photography of films from "The Perils of Pauline" to his most recent pictures. During his years in the motion picture industry he has been honored with seven Academy Award nominations and has received three Academy Awards for black-and-white photography. The Academy "Oscars" for outstanding cinematography of "How Green Was My Valley," "The Song of Bernadette," and "Anna and the King of Siam" stand proudly on the mantelpiece in Miller's den.

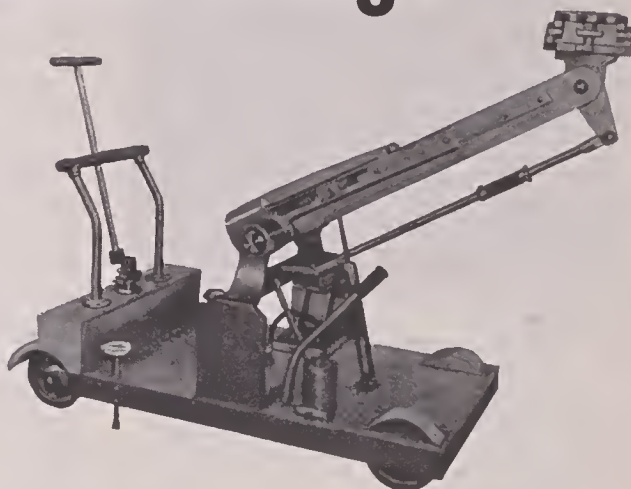
In forty-five years the motion picture industry has outgrown its early crudities and fumbling awkwardness; it has attained important stature as the world's major entertainment medium. Arthur Miller has been a vital cog in the wheel of this expanding phenomenon. Miller, as did other illustrious cameramen such as Fred Jackman Arthur Edeson, Philip Tannura, John Arnold, Charles Rosher, and John Boyle, literally grew up with motion pictures. And the fact that the old "flickers" evolved into such an imposing, creative, and entertaining giant can, in large measure, be credited to the resourcefulness and ingenuity of these early-day pioneer lens artists. **END**

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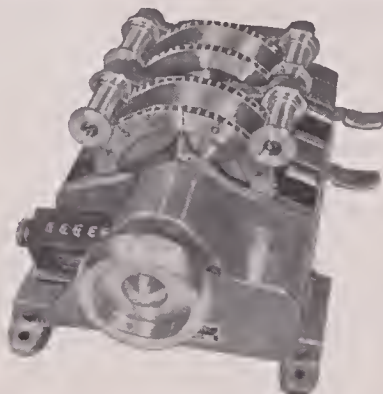
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SAVE THOSE ODD SHOTS

(Continued from Page 26)

ate stock shot reel, run it and select a shot that will serve your purpose.

The matter of keeping these stock reels "alive" and whenever possible adding to them is, of course, of the highest importance. If you once become conscious of the value of your stock shot library, however, it will not be difficult.

All of us encounter dozens of shots when out a-filming—shots interesting in themselves, but not of value to whatever we may have in hand at the moment. Sometimes we can't resist shooting them, anyway; sometimes older and more hardened filmers can resolutely steel themselves to pass them by.

But if we are content to shoot them, enjoy their merits, and then let them stand in the stock-shot reels, waiting their chance to be useful in a picture, sooner or later they will come in handy, while meanwhile the library grows usefully.

In the same way, it can be highly advantageous, when vacationing, to keep one's eyes—and lens—open for potentially useful stock scenes. Getting such useful shots on film need not take much of either time or film.

It will not be a noticeable drain on even a slim vacation budget. But the possession of such shots can often save a great deal of time and money when some later picture is being assembled.

This stock-shot idea, valuable as it is to an individual, can be even more valuable if carried out as part of an amateur movie club's cooperative program. Many clubs have libraries of magazines; quite a few have libraries of completed films. A good library of stock-shots could be of immense additional value to the members.

Practically every club member could find among his own film discards scenes which could be contributed to such a club stock shot file. He could also contribute further stock shot footage from odd footage filmed on vacations and business trips.

And if you will consider for a moment the spread of territory and interests covered by the vacations of the members of your own club, you can visualize the range and scope of a club stock-shot collection if even a majority of the members get behind the idea.

One club member may spend his vacation going to Detroit to get a new car; another may go to a convention in New York; a third may go fishing in Canada; a fourth may tour Europe while a fifth visits California, Mexico or Alaska.

If each of these cine clubbers makes but one stock-shot on each roll of film he exposes, the club will at the end of

the season have an unrivaled variety of shots which can be of use to many of the other members.

Perhaps the filmer who went to Europe forgot he needed shots of New York; the conventioneer's spare footage can provide it. Perhaps the man who went to Detroit needs a shot of a train to introduce the start of his trip; the shots of some other member can supply it. And so it goes, growing as the library and the enthusiasm behind it grow.

As a matter of practical club policy, however, it would seem wise to throw some safeguard around the project, so that those non-contributing members who as a rule are always with us, cannot draw upon the collection to which they have contributed nothing. At first thought, a small cash fee from such non-contributors would seem to cover this situation.

But this would reduce the library without adding any footage to replace what is drawn. It would seem wiser, therefore, to make the stock shot library open only to members who have contributed film—and usable film—and further to make participation possible only in proportion to the member's past contributions.

A member who had in the past contributed four good scenes might, therefore, be allowed to take three shots out. If he at the same time brought in further usable shots for the library, he would be entitled to take out additional footage. It seems only good sense to insist that the individual contribute more than he takes, especially during the building-up of such a scheme, for otherwise the library footage—and the

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More details elsewhere on this page.

benefits therefrom—would shrink instead of grow.

In any event, this idea of building a stock-shot library, whether put into practice individually or collectively, can become one of the most practical of aids to building better films.

Of course, even with one's personal stock shot file or that of his cine club, there will invariably arise need for footage not to be found among these stock shots. The needed shot, however, may be available in the stock shot file of some distant amateur filmer or perhaps arrangements can be made with such a filmer to shoot the footage for you.

With this thought in mind, American Cinematographer this month inaugurates a new service for its amateur movie readers—that of a Stock Shot column. Here readers may make known their needs in the way of a special scene or footage. Also, readers with such footage to sell or exchange may list their footage in this column.

The initial column is scheduled to appear in our March issue—providing, of course, sufficient listings have been received by our February 10th deadline. The column is not open to professional film makers.

To enable us to properly present needs or wants in stock shot footage be sure to give these facts:

- 1—Size of film—whether 8mm or 16mm
- 2—Color or black-and-white
- 3—Length (approximate)
- 4—Brief description of each scene wanted or offered.
- 5—Your name and address.

Mail this information to The Editor, American Cinematographer, 1782 North Orange Drive, Hollywood 28, Calif. Deadline for material is 10th of month preceding issue.

REMOTE CONTROL FOR MITCHELL CAMERA

(Continued from Page 18)

by being ganged to the second potentiometer slider simultaneously as it delivers the proper geared torque to the camera mechanism.

The potentiometers which proved adaptable to this problem are those of the ten turn helical type having extreme sensitivity. In the hand control the dial is identical with that on the camera, and the gearing within the hand control and motor unit result in a ratio of 3 turns of control knob to approximately 330 degrees at the lens.

Modification of the camera in this installation was localized at the lens knob on the side of the camera opposite to the finder (Fig. 4). A dovetail bracket with locking lever is mounted perma-

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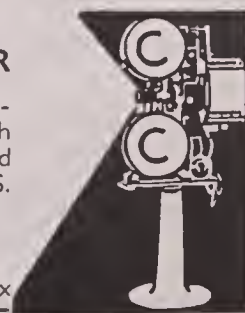
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With minor modifications of both the mechanical and electronic prototypes the system is now a practical solution to this problem, conforming to the design specifications outlined above.

It is readily apparent in designs of this type that mechanical and electronic considerations must be approached simultaneously with the science of each necessarily becoming aware of the problems and limitations of the other.

With the assistant cameraman now able to actuate the lens with precision from a point removed from the camera, the Director and Cinematographer may now make use of the camera position viewpoint to a greater extent; both in floor level dolly shots and overhead boom shots. END

PLAN SCENES IN SEQUENCE

(Continued from Page 28)

of interest, because it is at night in bed that I come up with my best ideas for interesting sequences. I ask myself, "Now, how can I shoot this place effectively, and yet use the scenes as a background for human action of one sort or another?" I always strive for a novel un-hackneyed approach.

For example, up at Harrison Lake in British Columbia, the resort featured sports—bowling on the green, tennis, horse-back riding, swimming, boating, etc. I arrived early in the afternoon and browsed about until sunset without making a shot. I couldn't, because I was too busy gauging effective camera angles, figuring which were morning and which were afternoon shots, and looking the guests over for possible "actors."

I went into action right after dinner by taking the assistant manager of the hotel into my confidence. He introduced me to a dozen or so guests who had appealed to me as actors and I "contracted" with them for various times of the day depending upon whether they were tennis players, swimmers, etc. One of the hotel waitresses was an excellent equestrienne, so she was told she needn't serve at lunchtime next day, because the horseback sequence was slated for noon. At the time these arrangements were made, I hadn't the

foggiest idea what I was going to do with all that talent!

There are moments between the time one gets into bed and finally falls asleep that are priceless when it comes to getting a proper slant on many things, and I have found that this is the ideal time for writing a mental scenario. That night I went over every camera angle, and visualized the guests acting out my scenes against the most photogenic backdrops the resort afforded. I broke the sequences down into longshots, medium shots and closeups and before I went to sleep had everything committed to memory.

Next morning at nine, the two young couples who were to enact the scenes leading up to the tennis sequences were on hand with all their sports paraphernalia and I made shots of one of the couples walking down a path in the hotel's flower garden. They reached a point where they stopped and looked around for their friends. The camera discovers the friends—the second couple—seated on a grassy slope in an expectant attitude, then cuts back to the first couple who sight their friends and run toward them. A medium shot shows the foursome exchanging greetings, after which they walk toward the tennis court. The camera then goes on a Cook's tour by itself as shots of the court and of the games in progress were made. This sounds long, but it really is a short sequence.

Other sequences were made showing the highlights of bowling on the green, as well as swimming and horseback riding. Naturally, the latter sequence was used to feature the best of the resort's lake and mountain viewpoints; and each of the sequences began in a novel way. The sub-title, "At Harrison Lake, the accent is on sports—such as—" and then there are separate sub-titles for "Bowling on the Green," "Tennis," "Horseback Riding," and the last category, "—and Flirting!" This latter sequence shows the assistant manager of the hotel stalking a blonde guest as she walks about the grounds. He overtakes her on a garden bridge and asks her if she will share a motorboat ride with him. She answers, "No, No, a thousand times No!" and as she shakes her head melodramatically, the scene lap-dissolves into a shot of both of them during a motorboat ride, and they are obviously enjoying it immensely. This scene ends the Harrison Lakes section of this film which became "Hail, British Columbia!"

The reason I have waxed reminiscent is that there are so many possible ways to devise sequences beyond those which are most frequently used that it is impractical to make suggestions without knowing the facts surrounding a particular moviemaking problem. I can tell

you how certain conditions—such as those which I found at Harrison Lake—will lend themselves to cine treatments of one sort or another, but it is impossible to establish standards for rule of thumb use in shooting.

For those interested in a set of rules which they can count off on their fingers, the following may be of help:

1. Do not make shots of any nature without a previously conceived plan of action.
2. Go over the area carefully, noting viewpoints, salient characteristics of the scenes, position of the sun at various times of the day, and give particular consideration to evaluation of the cine material and possible subjects who may be persuaded to work in the scenes.
3. Ponder over the facts which came to light during the inspection tour. This is the time for origination and visualization of ideas. Do not waste thought on the sensational shots you would like to make *but can't*. Stick to the available material and devise ways of heightening interest in it by means of a sequence which will employ a fresh approach to the subject.
4. Get away from the simple pictorial reporting approach of the average amateur by surprising your audience occasionally with a shot or a sequence which tickles their risibilities. "Make them laugh," is the best advice which an amateur can follow. More about this later.
5. Try to make every sequence the embodiment of visual images which were formed in your mind as the result of caprice. This does not mean that your approach should be coy or whimsical—but it is a fact that inspirations spring from the capriciousness of one's mind. A skeleton was propped up on the piano in front of Chopin as he wrote his famous Funeral March! If you get a lift out of devising a sequence, perhaps some of the fun may rub off on the audience.
6. Each sequence should be a neat package with the story thread firmly understood in the initial scene and with each shot a bit more interesting than its predecessor. Stick to the point throughout without digressing and, if you can, introduce a note of finality to the last scene in a sequence so that shifting into another sequence will appear to be natural. Shoot the individual scenes in a sequence in the order that they will be spliced into the finished movie; not to save editing—but principally because you will work without a script and may neglect to film an essential scene.

Laughs are hard to come by in an

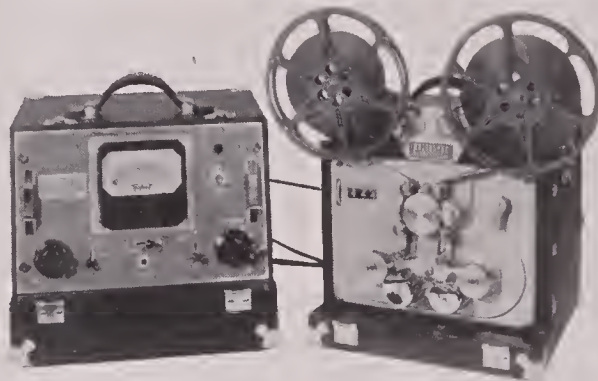
(Continued on Page 45)

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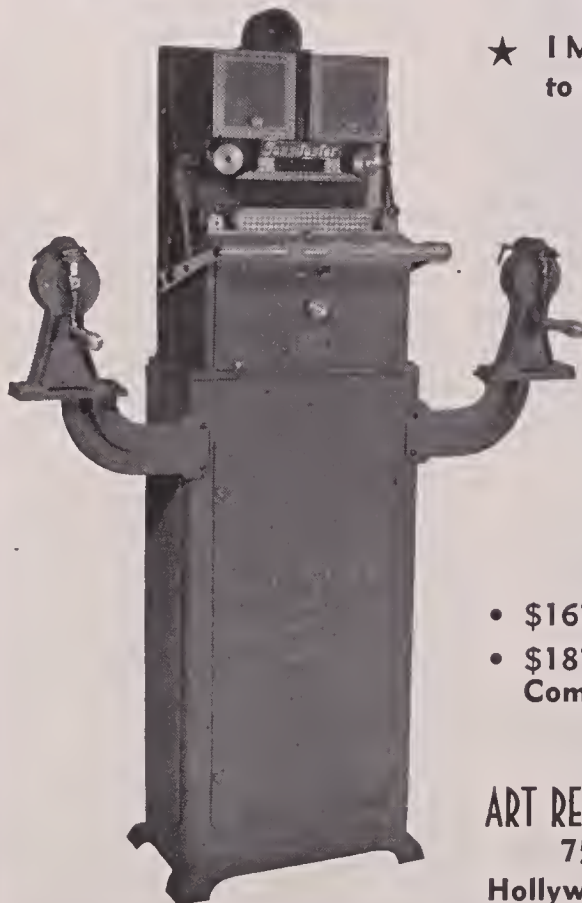
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Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

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★ ★ ★ ★

Allied Artists

- HARRY C. NEUMANN, "Jalopy," with Leo Gorcey, Huntz, Hall, Jane Easton, the Bowery Boys. William Beaudine, director.

Columbia

- HENRY FREULICH, "Conquest of Cochise," (Esskay Pics.) (Technicolor), with John Hodiak, Robert Stack, and Joy Page. William Castle, director.
- LESTER WHITE, "49 Men," (Esskay Pics.) with John Ireland, Richard Denning, and Suzanne Dalbert. Fred F. Sears, director.

Metro-Goldwyn-Mayer

- GEORGE FOLSEY, "The Band Wagon," (Technicolor) with Fred Astair, Cyd Charisse. Vincente Minnelli, director.
- WILLIAM MELLOR, "Give A Girl A Break," (Technicolor) with Marge and Gower Champion, Debbie Reynolds. Stanley Donen, director.
- ROBERT SURTEES, "Mogambo," (Technicolor) with Clark Gable, Ava Gardner, Grace Kelly and Douglas Sinden. John Ford, director.
- RAY JUNE, "A Slight Case of Larceny," with Mickey Rooney, Eddie Bracken, Elaine Stewart, and Marilyn Erskine. Don Weis, director.
- JOSEPH RUTTENBERG, "Latin Lovers," (Technicolor) with Lana Turner, Ricardo Montalban, John Lund, Louis Calhern, Jean Hagen, Beulah Bondi, Eduard Franz, Rita Moreno, and The Modernaires. Mervyn LeRoy, director.
- HAROLD LIPSTEIN, "The Great Diamond Robbery," with Red Skelton, Cara Williams, James Whitmore, Dorothy Stickney, Adolphe Menjou, Reginald Owen, and Horace McMahon. Robert Z. Leonard, director.

- HAL ROSSON, "Years Ago," with Spencer Tracy, Jean Simmons, Teresa Wright, Tony Perkins. Kay Williams, and Mary Wickes. George Cukor, director.

Paramount

- GEORGE BARNES, "Little Boy Lost," with Bing Crosby, Claud Dauphin, Nicole Maurey, Chris Fourcade. George Seaton, director.
- LIONEL LINDON, "Here Come The Girls," (Technicolor) with Bob Hope, Tony Martin, Arlene Dahl. Claude Binyon, director.
- RAY RENNAHAN, "Arrowhead," (Technicolor) with Charlton Heston, Jack Palance, Katy Jurado, Michael Keith, Mary Sinclair, Michael Shannon, Judith Ames, and Milburn Stone. Charles Marquis Warren, director.
- DANIEL FAPP, "(Untitled)" with Dean Martin, Jerry Lewis, Donna Reed, Barbara Bates, Don Porter, and Joseph Calleia. Norman Taurog, director.

Republic

- JOHN L. RUSSELL, JR., "City That Never Sleeps," with Gig Young, Mala Powers, Edward Arnold, Marie Windsor, and Wally Cassell. Producer-director, John H. Auer.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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20th Century-Fox

- JOE MACDONALD, "Nearer My God To Thee," with Clifton Webb, Barbara Stanwyck, Thelma Ritter. Jean Negulesco, director.
- LUCIEN BALLARD, "The Desert Rats," with James Mason, Richard Burton, Robert Newton, Chips Rafferty, Charles Tingwell, and James Lihurn. Robert Wise, director.
- HARRY WILD, "Gentlemen Prefer Blondes," (Technicolor) with Jane Russell, Marilyn Monroe, Charles Coburn, Elliott Reid, and George Winslow. Howard Hawks, director.
- CHARLES G. CLARKE, "Fight Town" (Technicolor) with Jeanne Crain, Dale Robertson, Richard Boone, Carol Mathews and Carl Betz. Harmon Jones, director.
- LEON SHAMROY, "White Witch Doctor," (Technicolor) with Susan Hayward, Robert Mitchum, Walter Slezak. Henry Hathaway, director.

Universal-International

- MAURY GERTSMAN, "The Golden Blade," (Technicolor) with Rock Hudson, Piper Laurie, Gene Evans, Kathleen Hughes, and Edgar Barrier. Nathan Juran, director.

- RUSSELL METTY, "The Prince Of Bagdad," (Technicolor) with Victor Mature, Mari Blanchard, Guy Rolfe, Virginia Field, Palmer Lee, Ludwig Donath, Jim Arness, Nick Cravat, Charles Arnt, and Howard Petrie. George Sherman, director.

- CLIFF STINE, "East Of Sumatra," (Technicolor) with Jeff Chandler, Marilyn Maxwell, Anthony Quinn, John Sutton, Jay C. Flippen, and Eugene Iglesias. Budd Boetticher, director.

- CHARLES BOYLE, "The Stand At Apache River," (Technicolor) with Stephen McNally, Julia Adams, Hugh Marlowe, Hugh O'Brian, Russell Johnson, and Jaclynne Greene. Lee Sholem, director.

- CARL GUTHRIE, "Stopover," with Barbara Stanwyck, Richard Carlson, Maureen O'Sullivan, Richard Long, Marica Henderson, Lori Nelson, and Billy Gray. Douglas Sirk, director.

Warner Brothers

- EDWIN DUPAR, "The System," with Frank Lovejoy, Robert Arthur, Dan Seymour, and Victor Perrin. Lewis Seiler, director.
- ROBERT BURKS, "The Grace Moore Story," (Technicolor) with Kathryn Grayson, Walter Abel, Merv Griffin, Ann Doran, and Rosemary DeCamp. Gordon Douglas, director.
- WILFRED CLINE, "Calamity Jane," (Technicolor) with Doris Day, Howard Keel, Allyn McLerie, Dick Wesson, and Philip Carey. David Butler, director.

Independent

- JAMES WONG HOWE, "Main St. To Broadway," (Cinema Prodn.) with Tallulah Bankhead, Olivia de Havilland, Faye Emerson, H. Fonda, R. Harrison, M. Martin. Tay Garnett, director.
- JOSEPH BIROC, "Harness Bull," (Sequoia Pictures) with Edward G. Robinson, Joan Vohs, and Edward Binns. Arnold Laven, director.
- NICK MUSURACA, "The Blue Gardenia," (Gottlieb Prods.) with Anne Baxter, Richard Conte, Ann Southern, Raymond Burr, Jeff Donnell, Richard Erdman, Ray Walker, and Nat King Cole. Fritz Lang, director.
- HARRY STRADLING, "A Lion Is In The Streets," (Cagney Prod.) (Technicolor) with James Cagney, Barbara Hale, Ann Francis, Lon Chaney, Jr., Frank McHugh, Mickey Simpson, John McIntire. Raoul Walsh, director.
- STANLEY CORTEZ, "China Gold," (Wisberg-Pollexfen Prod.) with John Archer, Hillary Brooke, Noel Cravat, and Philip VanZandt. A. Wisberg and J. Pollexfen, producers-directors.
- JOHN ALTON, "The San Quentin Story," (Swartz-Doniger Prod.) with Louis Hayward, Joanne Dru, Paul Kelly, Maureen O'Sullivan, George MacReady and Horace McMahon. Walter Doniger, director.
- STANLEY CORTEZ, "The Neanderthal Man," (Wisberg-Pollexfen Prod.) with Richard Crane, Robert Shane, and Doris Merrick. E. A. Dupont, director.

'PRODUCTION VALUE'

(Continued from Page 22)

Granted that a film has a good script, capable actors, and an efficient production crew—the resulting picture still depends upon the presentation of these elements for the generally good, bad, or indifferent impression it creates when flashed upon the screen. It is for this reason that the *photography* of a feature production is so important—for it is the camera through whose eye the story is actually presented.

The photography cannot, of course, compensate for a poor script or faulty direction; but it can do a great deal to impart quality to a picture that might otherwise be merely adequate. In the same way, unimaginative camera work can detract from the most expensive and lavishly mounted extravaganza.

Looking back at such recent artistic and equally popular films as "Our Lady of Fatima," "The Four Poster," "Scaramouche," "Snows of Kilimanjaro," and "My Cousin Rachel," we find that none of these films could be termed an "extravaganza." There were no breath-taking sets, no casts of thousands, no gigantic, colossal, or stupendous effects calculated to transfix the audience. Yet each of these films bore the stamp of quality, plus an atmosphere of richness in presentation—an effect which in almost every case can be traced to a combination of intelligent set design and outstanding camera work.

Considering production value from the standpoint of the camera, we find that the director of photography has three elements with which to work, in addition to the actual physical equipment which he uses to expose the film. These elements are: lighting, composition, and camera movement—and the way in which he uses them accounts for the quality of the final photographic result.

Imagination and careful pre-planning are two factors that help the efficient cinematographer to get the most from the equipment he is using. Often he is assigned to a picture a day or two before shooting begins, and thus is not allowed sufficient time to prepare his lighting and photographic plans for the picture. In such a case, the film is bound to suffer photographically to a greater or lesser degree.

But where the cinematographer is given the script well in advance and has time to carefully plan the photography, he can work out patterns of lighting, composition and camera movement that will present the story on the screen to best advantage, and at the same time convey an impression of greater production value.

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Taking the three photographic elements one by one, we can see how each contributes to the quality of the final result. *Lighting* is perhaps the most important single factor, for light is the medium with which the cameraman "paints" his scenic compositions. In a cheap picture, flat, unimaginative lighting is generally used, because that is the quickest and least expensive way to light a set. The result, however, *looks* cheap on the screen. If the cinematographer on a picture of this type were given sufficient time to study the script, the

settings, and the action to be filmed, he could work out a lighting pattern with depth, modeling, and richness—and the resulting film would show a good deal more quality on the screen.

Similarly, *composition* is an important factor that is often neglected both in high and low budget pictures. Good composition amounts simply to putting the dramatic emphasis of a scene in its proper place. The top-notch cinematographer achieves this result by making sure that the lines within his frame, the perspective of the camera angle,

and the pattern of movement on the screen—all lead toward the focal point of the action. Again, pre-planning allows the cinematographer to chart effective composition in advance, so that he is not forced simply to set up the camera quickly and shoot every scene from a straight-forward, undramatic angle.

The third factor, *camera movement*, is too often thought of as an "expensive" element, since moving camera shots take more time to set up, rehearse, light and photograph. This seeming extravagance is, however, balanced by the fact that it is often possible to lace together by means of camera movement as many as five scenes that would otherwise require separate setups. Certainly smooth camera movement, correctly motivated, is a device that adds fluent quality to a photoplay and carries the story forward more effectively.

Producers of low-budget films invariably economize by engaging mediocre talent to place a mediocre story on the screen within restricted number of shooting days. The result almost always is a mediocre film—but the system has flourished because the double-feature policy has demanded a constant flood of good, bad and indifferent product in order to fill the exhibitors' schedules. However, present-day audiences are more critical than they used to be, and are now prone to criticize technical shortcomings as well as dramatic faults in a film.

In production ranks this trend has inspired two reactions. First, several of the major studios have announced the intention of making only "A" pictures in the future, thus falling back on the faulty *more-money-more-quality* line of reasoning. Second, and much more significant, certain low-budget producers have decided to engage top-notch talent and to save money by intelligent pre-planning to cut down wasted time in production.

Speaking of the relationship between the camera and production value, director of photography Lee Garmes, ASC, recently observed: "The camera can produce an aura of quality by pointing up the strong points of the production, while at the same time minimizing its inadequacies. The result depends upon a happy blending of composition, lighting and camera movement. I believe in *under-lighting* in order to stimulate the audience's imagination. Correct use of low-key, silhouette and shadow allows the audience to complete in its own mind the idea that the writer and director are trying to put across. To light a set brilliantly in order to show everything at once would destroy that effect."

Thus it may be seen that production

value depends in great measure upon proper camera emphasis and atmospheric lighting, as well as upon making the most efficient use of the story elements at hand, be they lavish or modest. Careful pre-planning in every phase of production, teamwork between director and cinematographer, plus the use of top-notch technicians—all of these factors figure heavily in the impression of quality that reaches the screen. It is these elements and not towering budgets that create real production value. END

'5000 FINGERS'

(Continued from Page 17)

dungeon, and the nightmarish aspect of the Mound Country and the weird butterfly men who pursued him.

Here color was deliberately underplayed; indeed for the most part there was little or no color in the sets. Only the boy appeared in full color against the negative backgrounds—a photographic innovation which becomes a pictorial delight on the screen.

The pictorial effectiveness of the dungeon scenes, wherein a score of demoted, mouldy-looking musicians play fantastic instruments, is enhanced by striking use of colored light and green, luminous makeup. When first he shot this scene, Planer employed conventional set lighting—with disappointing results. He changed the lighting pattern completely, lowering the key and adding color to the light. Here also he employed ultraviolet and fluorescent light with great effectiveness.

Another interesting innovation was that employed by Planer when shooting closeups of the characters of the Mound Country. To enhance the illusion of moonlight, a narrow beam of colored light was directed on the eyes of the men—a different color for each one.

An unsuccessful attempt was made to photograph the familiar stage technique of reversing the coloring of subjects by painting them with luminous paint and then switching from regular incandescent to ultraviolet light. Only in the closeups did the transition register completely; it wouldn't record at all on the film in medium and long shots. The reason, Planer learned, is that it was

The Stanley Kramer Company produced "The 5000 Fingers of Dr. T" for Columbia Pictures Corporation. Directed by Roy Rowland the picture features Peter Lind Hayes, Mary Healy, Hans Conreid and Tommy Rettig. Filmed in Technicolor, the production is scheduled for release in April, 1953.

impossible to build up any appreciable illumination volume with ultraviolet light.

For all closeups, other than those mentioned immediately above, Frank Planer used his familiar Houdini eye-light, a narrow, hand-held incandescent unit which he employs to cast the small pin-point of sparkling light that gives life to the eyes of players in closeups. This, Planer handles himself, crouching just below the lens hood of the camera and directing the light on eyes of the player as necessary.

Planer is loud in his praise of the new Columbia cone lights. The quality of illumination they give is the most ideal for color photography, he says, adding that conventional harsh lighting invariably takes away some of the quality of color.

"The use of cone lights," said Planer, "made it easier to light those sets which called for the addition of matt shots at the top. The piano courtyard set especially, while it extended clear to the ceiling of the sound stage, was heightened further pictorially in the finished result through effective matt shot photography. This called for a special quality of lighting on the overall set, and this the cone lights provided most successfully."

In analyzing the photography of "5000 Fingers," Planer said the aim from the very beginning was to picture the scenes and players from the viewpoint of a child, employing fantasy through lighting and camera treatment. "In short what we sought photographically was the effect of a typical Walt Disney cartoon, done in live action."

TECHNIQUES FOR EXTERIORS

(Continued from Page 19)

it will be found that when using even the smallest lens opening the scene will be overexposed. In this case, there are two ways of cutting down exposure. One is to use *neutral density filters* of optically ground grey glass that absorb all colors in equal relative proportion. The other alternative is to cut down shutter angle. Most 35mm professional cameras and some 16mm cameras (such as the Cine Kodak Special and the Pathe-16) have variable shutters which make possible compensating for light conditions by reducing the shutter opening and consequently the amount of light reaching the film.

There is more to using an exposure meter than merely pointing it at the scene to be filmed. Many cameramen do just that, and then wonder why their exposure is so far off.

First, you must decide what elements of the scene you are principally exposing for. When people appear in the composition, obviously you must be mainly concerned with the rendition of skin tones. Therefore, the principal reading should be taken just a few inches from the subject's face. Other readings, taken from camera position, etc., should be balanced to favor this principal reading.

Second, a meter usually "sees" a wider angle than that encompassed by the camera lens. Therefore, it is necessary to take most meter readings from a position closer to subject than camera position.

On this same subject, it should be pointed out that excessive sky areas in a scene are especially misleading when you are taking a meter reading. The sky is usually overly-bright in relation to the rest of the scene, and will tend to boost a meter reading higher than it should be for exposing the actual subject. For this reason, it is wise to tilt meter downward a bit (at about a 30° angle) in order that the cone of focus will cover more foreground and less sky background.

Most cameramen are aware of the importance of a good sunshade over the lens, which will prevent strong light from causing *flare*. The element of an exposure meter is similarly affected when scattered rays of light fall upon its unshaded surface, causing a deceptively bright reading of the scene. Therefore it is advisable to shade the meter cell opening either with your

hand, or with a home-made cardboard shade in order to achieve a more faithful reading.

Filters have three primary purposes:

- To correct the rendition of certain colors.
- To cut down the amount of light reaching the film.
- To produce special pictorial effects.

In any event, filters should not be used just for the sake of using them, but always with a specific purpose in mind.

First, use filters to *correct* certain color tones, notably to darken skies and water and thus keep them from "burning up" the composition. Yellow and orange filters, used in this way, add a certain richness to exterior scenes and provide a pictorial contrast between flesh tones and the sky. Red filters, over-correcting blue tones, darken the sky dramatically, but must be used very carefully, as they tend to "wash out" skin tones unless special make-up is used.

The second function, that of *cutting down exposure*, is achieved, as we have pointed out, through the use of neutral density filters. These filters are available in varying densities from 25% to 200%. They also tend to flatten out contrast to a greater or lesser degree depending upon the density of filter used.

The third function of filters, that of producing *special pictorial effects*, is used in simulating night effects outdoors in daylight, and in fantasy films

(Continued on page 44)

1952 BOX SCORE

(Continued from Page 21)

William Snyder

"The Korean Story," RKO.
"Blackbeard The Pirate," RKO.

Clifford Stine

"Almost Married," U-I.
"Ma and Pa Kettle at the Front," U-I.
"Abbott and Costello Go To Mars," U-I.
"Law and Order," U-I.
"East of Sumatra," U-I.

Archie Stout

"Big Jim McLain," W.B.
"The Sun Shines Bright," Rep.
"Alma Mater," W.B.

Harry Stradling

"Hans Christian Andersen," Goldwyn
"Angel Face," RKO.
"Forever Female," Para.
"A Lion In The Streets," Cagney-W.B.

Walter Streng

"Mr. Walkie Talkie," Hal Roach, Jr.

Karl Struss

"Limelight," Chaplin.
"Tarzan and the She Devil," Lesser.

Robert Surtees

"The Merry Widow," MGM.
"Tribute To A Bad Man," MGM.
"Vaquero," MGM.
"Mogambo," MGM.

Leo Tover

"We're Not Married," Fox.
"My Wife's Best Friend," Fox.
"Big Man," Fox.
"The President's Lady," Fox.

Paul Vogel

"The Girl In White," MGM.
"Days Before Lent," MGM.
"You For Me," MGM.
"Rogue's March," MGM.
"The Clown," MGM.
"The Girl Who Had Everything," MGM.

Joseph Walker

"Affair In Trinidad," Col.

Gilbert Warrenton

"Lost Women Of Zarpa," Howco Prod.

Lester White

"White Lightning," Allied Artists
"49 Men," Col.

Harry Wild

"Beautiful But Dangerous," RKO.
"Breakup," RKO.
"Gentlemen Prefer Blondes," Fox.

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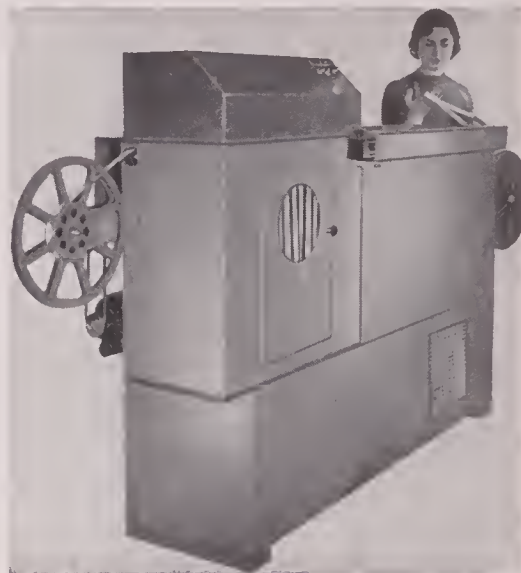
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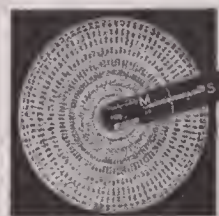
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END

TECHNIQUES FOR FILMING EXTERIORS

(Continued from Page 43)

for creating weird dream sequences, etc. For night effects, the red filters (23A, 25A, 29F, 70, and 72) are most widely used. For softer night effects in sunlight, a combination of 50B with 23A is quite effective. For the fantasy effects mentioned 25A, 29F, 70, 72, and 88A filters are used with infra-red film.

In outdoor filming, especially in bright sunlight, there is a naturally harsh contrast between the light and shade areas of the composition. This contrast is especially unflattering in close-ups of persons. In order to soften the harsh effect and fill in the shadow areas, we use simple reflectors that can be easily constructed by pasting squares of silver or gold foil onto plywood flats.

Correctly used, these reflectors impart a professional *finish* to the film—but if over-used, they may cancel out shadow areas almost completely, creating a flat and undramatic result. Be careful to use your reflectors intelligently, since it takes a certain amount of soft shadow to give a pleasant modeling to faces.

There are two kinds of reflector surfaces: the hard variety (silver), and the soft (gold). Soft reflectors give a nice smooth quality in close-ups, but should not be used in color cinematography, since they reflect an unusually warm color of light.

Closely allied to reflectors in usefulness to the cameraman are *scrims* of gauze netting which are helpful in diffusing sunlight when it falls too harshly upon faces in close-ups. These scrims, either single or double depending upon the amount of diffusion desired, are suspended out of camera range, between the sun and the subject, and function to break up and soften the harsh direct rays of the sun.

Often unwanted reflections from some surface such as a white wall, etc., may cause your subject to squint. This glare can be softened in many cases by placing a *gobo* (black square of wood or plywood) between the subject and the offending surface.

For diffusing close-ups a diffusion disc is very helpful—but a layer or two of gauze net placed before the lens will give almost the same effect. In using net as a diffuser, be careful that it is well-shielded, as sunlight falling directly upon it will cause flare. Also, be sure that the net is placed as close to the lens as possible; otherwise the criss-cross pattern of the cloth may come into focus just sharply enough to be noticeable.

Volumes can, and perhaps *should*, be written on the subject of composition in motion pictures. We cannot hope in

this small space to discuss the subject at great length, but feel it necessary to present a few basic rules for making exterior screen compositions more effective.

Cinema composition is not the static thing it is in still photography. Screen composition is fluid and ever-changing; therefore, it requires a more precise, more versatile kind of planning in order to insure visual patterns that will remain interesting throughout the action of an entire sequence.

But aside from adding interest to the visual presentation of the story, the function of effective composition is to lead the eye directly to the most important point in the scene. For this reason, action should be so staged that the lines of the setting in which it is played will lead to the areas of greatest dramatic importance.

A *closed* composition is one which is framed on all sides (by trees, etc.) in such a way as to prevent the eye from straying from the focal point of action. This kind of foreground framing, besides aiding dramatically is also effective pictorially in lending depth to the scene.

In the case of a *pan* or *dolly* shot, always plan in advance your separate compositions for each camera *stop*, then plot in the camera movement that will tie these separate compositions together. As for movement within the scene, it is a basic tenet that lines of action leading straight across the screen are less potent dramatically than those originating near one of the corners of the frame and leading into it diagonally. A line of action or static design leading into the pattern from the lower left hand corner of the screen is considered to be the

strongest single line of composition.

Similarly, it is undramatic to divide the frame equally in half either horizontally or vertically by any compositional line (such as a tree or the horizon). By mentally dividing a scene into thirds both ways, and placing the focal point of interest at any of the intersections of these imaginary lines, we evolve a composition that is much more effective than one that is divided into halves.

In shooting snow exteriors, the primary problem is to cut down the extreme brightness contrast ratio between the white snow and the shadow areas. This problem of reducing harsh contrast also applies to desert and seascapes.

In the case of snow in bright sunlight, the brightness contrast of the scene is tremendous. Add to this the substantial amount of light reflected from the white surface, and you have a good deal of light to contend with.

Various filters and filter combinations have been used by professional cinematographers to soften snow scenes so that they do not "burn up" on the screen. Some of these filters and their effects are described below:

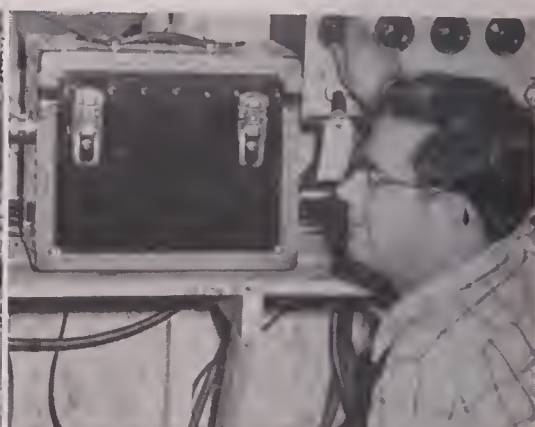
3N5 (a combination of Aero 1 and 50% Neutral Density filters) gives a light color correctness to the sky without increasing contrast of the remainder of the scene.

5N5 (a combination of Aero 2 and 50% Neutral Density filters) — gives medium sky correction without excessive contrast. It has the same basic action as 3N5, but with added detail. It is used to soften strong glare and contrast in snow scenes having heavy shadows.

X2 and 23A filters super-imposed. This combination darkens skies and produces a pleasant softness that cuts contrast between snow and shadow.

If any errors must be made in ex-

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posing snow scenes, they should preferably be made toward the underexposed side of the scale.

It is our intent in this brief treatise to give the student of cinematography the benefit of some of the experiences and practices of the professional, in order that he may better apply professional methods to his own camera work. As with all skills, it is the persistent application of procedures that make for perfection—diligent study that makes such applications successful.

The foregoing article is condensed from "The Cinema Workshop," by Charles Loring.

PLAN SCENES IN SEQUENCE

(Continued from Page 39)

amateur film, but sometimes they pop up unexpectedly during the filming without having been planned. They usually are the result of a sudden change of mood and are most spontaneous when the picture is following a serious vein and, without warning, something very droll or ridiculous happens. During the filming of "Land Snakes Alive!" my camera was trained upon a boy six years old who was playing with a four foot long non-poisonous snake. The boy had bare arms and shoulders, and the snake crawled over his shoulders, then down his chest, and eventually started to crawl under his arm. The audience was always aghast to see such a young boy handling the snake. When the snake touched the boy's underarm, it tickled, and the boy jumped and giggled, then looked apologetically in the direction of the camera because he knew he had spoiled the scene. That was what *he* thought, but it gets a laugh every time, and so the scene was left in.

It is fun devising sequences with laughs in mind, but it must be borne in mind that laughter is an involuntary spasm of the respiratory organs and people don't laugh because they want to. They won't laugh because you want them to, either, unless you *make* them laugh. There are two ways of doing this, the sudden change of mood already described, and the more familiar, though seldom analyzed system wherein one funny action or event follows another so rapidly that one's nervous system has to throw off the excess of emotion in the pleasant way Nature has provided.

It helps very much when a movie-maker understands the mechanics of laughter, but it is not very often an amateur produces a comedy which employs the difficult cumulative laugh system. It is better to stick to sequences which are simple to film, and which in-

volve basic human emotions.

If the action in a Christmas movie shows Father, tipsy, indulging in too much holiday spirit, his antics will not get a laugh. But if he enters the living room and tries to assist Mother in wrapping up Christmas presents, and contrast shots are made showing Mother's perfect wrapping technique, and then Father's befuddled attempts at wrapping the presents—the quick changes from the sublime to the ridiculous might provoke laughter.

The effectiveness of comedy and other sequences will depend upon the imagination of the moviemaker, for it is only by thinking the action through scene by scene that the little twists and personal touches can be introduced into the footage. By all means, think in terms of sequences, do not starve them, and make each one fit like a gem within the framework of your movie.

WHAT'S NEW

(Continued from page 10)

Groverlite, announces that these two items of motion picture lighting equipment will henceforth be made and distributed by Natural Lighting Corp., 2753 El Roble Dr., Los Angeles, 41, Calif. New additions to the Groverlite models are soon to be introduced for the TV field, according to Grover.

F&B Announce Two New Items—Florman and Babb, distributors of movie and TV equipment, 70 West 45th St., New York City, announce the distribution of two new important items of motion picture equipment: the Kelly Cine Calculator, and the foreign-made Angenieux Retrofocus wide angle lens. The latter is an extreme W/A lens, 9.5mm with an aperture of f/2.2, and said to have excellent resolution and contrast. It is very critical for back focus and must be accurately mounted for optimum results. Available immediately in C mounts, list price of lens is \$175.00.

The Kelly Cine Calculator is a pocket-size slide-rule in disc form possessing a great deal of information usually found in pages of handbooks. Data available at a glance includes Depth of Field, Hyperfocal Distance, Aperture Scales, Field of View, Filter Factors, and Film Speeds Per Second—plus many others. The calculator comes in two models—35mm model, and 8-16mm model for cine photographers. List price is \$3.95.

Norwood Meters—Director Products Corporation, New York City, announces that the Norwood Director exposure meter will be available in Europe after January 1st.



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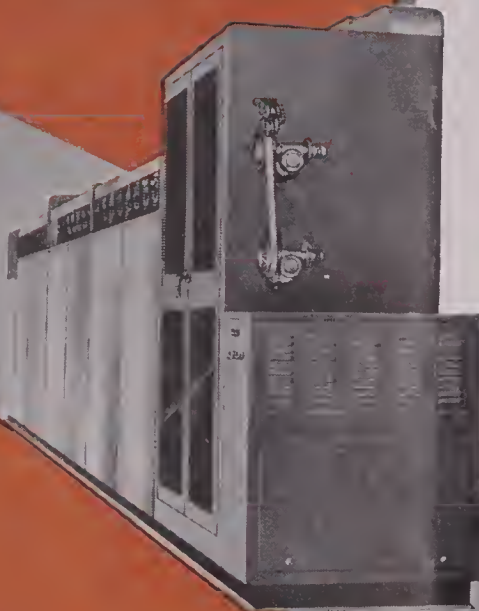


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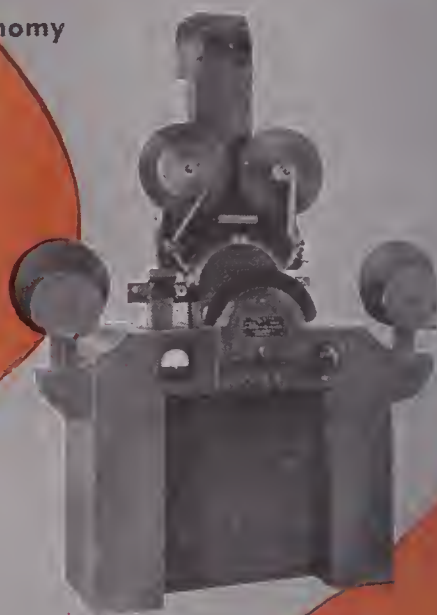


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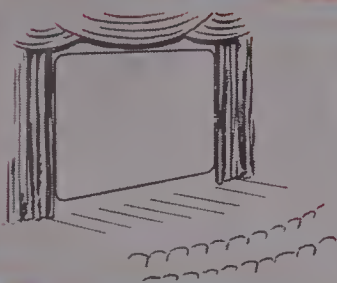
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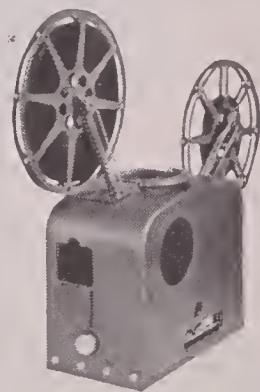
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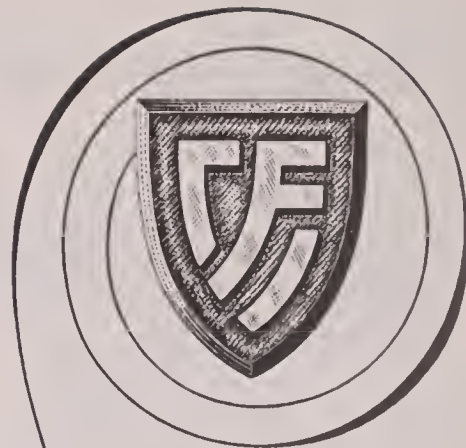
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ON THE COVER

ANOTHER MAJOR 3-D color production gets under way in Hollywood with Karl Struss, ASC, (left) directing the photography. The Sol Lesser production was photographed with the Stereo-Cine Corporation's 3-D equipment, which is built around two Eclair 35mm Camerettes. Observing initial use of his company's equipment in a major production is Raphael G. Wolff (striped tie), president of Stereo-Cine Corporation, Hollywood.—Photo by Gaston Longet

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Hollywood

Bulletin Board

DIRECTORS OF PHOTOGRAPHY of the Hollywood motion picture studios, in a preliminary balloting, have selected ten black-and-white and ten color productions of 1952 as candidate entries for Academy Award nominees for photographic achievement awards.

Nomination ballots were mailed to all directors of photography on January 15th and they will now vote to select the five films in each class as this year's award nominees. Result of nominations balloting will be announced by the Academy through the nation's press on February 10th.

The twenty candidate-films and the directors of photography who filmed them are as follows:

BLACK-AND-WHITE PRODUCTIONS

"Androcles And The Lion." Harry Stradling, ASC, (RKO).

"The Bad And The Beautiful." Robert Surtees, ASC, (MGM).

"The Big Sky." Russell Harlan, ASC, (Fox).

"High Noon." Floyd Crosby, ASC, (Kramer).

"My Cousin Rachel." Joseph LaSelle, ASC, (Fox).

"Navajo." Virgil Miller, ASC, (Lip-pert).

"Pat and Mike." William Daniels, ASC, (MGM).

"Sudden Fear." Charles Lang, ASC, (Kauffman-RKO).

"The Thief." Sam Levinson, (Popkin-United Artists).

"Viva Zapata." Joseph MacDonald, ASC, (Fox).

COLOR PRODUCTIONS

"Blackbeard The Pirate." William Snyder, ASC, (RKO).

"Hans Christian Andersen," Harry Stradling, ASC, (Goldwyn).

"Ivanhoe." Frederick A. Young, ASC, (MGM).

"The Jazz Singer." Carl Guthrie, ASC, (Warner Bros.).

"The Merry Widow," Robert Surtees, ASC, (MGM).

"Million Dollar Mermaid." George Folsey, ASC, (MGM).

"Moulin Rouge." Ossy Morris, (Romulus Films).

"Prisoner Of Zenda." Joseph Ruttenberg, (MGM).

"The Quiet Man." Winton Hoch, ASC, (Argosy-Republic).

"The Snows of Kilimanjaro." Leon Shamroy, ASC, (Fox).

The five productions selected in each classification in the nominating ballot-

ing will be reported here next month.

In the meantime, the Academy is proceeding with its plans to hold the presentation ceremonies the evening of March 19, at the Hollywood Pantages Theatre.

ARTHUR MILLER, ASC, three-time Academy Award winner and photographer of more than 150 Hollywood productions, was given an honorary membership last month by Delta Kappa Alpha, national honorary cinema fraternity, at the University of Southern California.

GLEN KERSHNER, ASC, retired cinematographer turned author, is completing plans to retire permanently to Tahiti, where he spent many months a few years ago photographing motion pictures and gathering material for his book on the South Seas.

THREE-DIMENSION MOVIES currently are a "hot" item with every major studio. Following box-office success of Arch Oboler's "Bwana Devil" and the successful presentation of Cinerama, nearly every major studio either has begun production on its initial 3-D film or plans to do so very shortly.

Studios include Metro-Goldwyn-Mayer, Twentieth Century Fox, Warner Brothers, Columbia, and Universal-International. Columbia and Warners reportedly will use Milton Gunzberg's Natural Vision stereo camera, which were employed by Oboler in his initial 3-D production. Universal is reported as building its own 3-D camera equipment, based on a different arrangement than that of Natural Vision.

Twentieth Century-Fox has completed tests in its own third-dimension process.

In the meantime, Sol Lesser, using 3-D camera equipment of a newcomer in the field, Stereo-Cine Corp., began his initial theatrical production in color and 3-D at RKO-Pathé studios last month, as reported elsewhere in this issue.

Meantime, the activity in 3-D production has been given intense study by the industry's craft unions to determine whether demands should be made for increased crews, and to more sharply define the activities of such crew men as camera operators and assistants. At the present time, the cameramen's union is requiring the addition of another

(Continued on Page 89)

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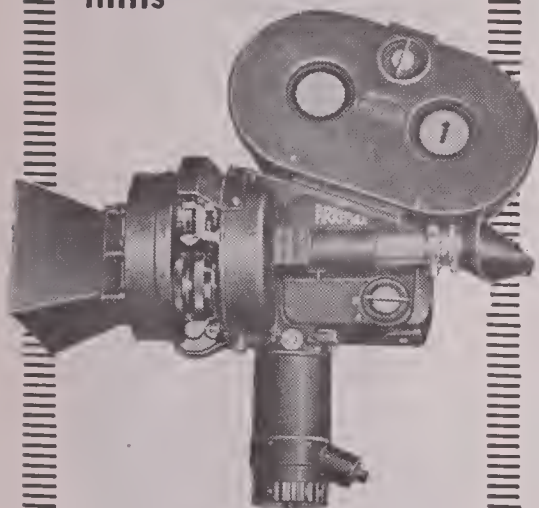
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WHAT'S NEW

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Camera Battery Pack — Par Products Corp., 926 No. Citrus Ave., Hollywood 38, Calif., announces a new, lightweight DC storage battery pack for operation of motion picture cameras equipped with PAR 12-v. universal motor drives. Unit can also be used as a power source for other 12-v. camera motor drives.



Batteries are in a compact case, easy to carry and use. Other noteworthy features are: long life, ample power for speeds up to 64 fps, and a power selector which allows the motor to draw from the battery only the power required to operate the camera. This insures even discharge of battery cells. An integral charger unit is available at slight additional cost.

Portable Mike Boom — National Cine Equipment, Inc., 209 W. 48th St., New York, N. Y., announces a lightweight, collapsible portable microphone boom for studio and location work. Boom telescopes approximately 7 to 17 feet. A balance weight at rear is adjustable for



extension of boom. Remote control permits operator to both adjust the boom and rotate the microphone. A control extension permits the same convenient operation even when boom stand is elevated to maximum height.

Other features include: oversize friction boom clutch; outside suspension of mike cable by clips; $\frac{1}{4}$ -inch threaded microphone mounting rod; boom dolly is in two sections, having collapsible legs and ball-bearing wheels.

Improved Film Cement — The Kalart Co., Plainville, Conn., announces a new improved formula for its Craig Safety Film cement. Known as Formula #7, new cement will splice film regardless of type of base. It is fast drying, does not deteriorate, and excess cement is easier to clean from film surface. One-oz. bottle of the cement sells for 40c.

New Remote Mixer — Stancil Hoffman Corporation, 921 No. Highland Ave., Hollywood 38, Calif., offers a versatile remote sound mixer for motion picture and TV film production. To accommodate the various requirements of pre-amplification, the model AM-3 mixer



uses small plug-in preamplifiers which are available in a wide range of impedances and gain. Four such pre-amps may be used. The unit is complete with AC power supply, announce microphone and talk-back, plus facilities for AC and DC operation. Additional data may be had by writing the company.

CEC Distributes Magnasync — Camera Equipment Company, 1600 Broadway, New York City, has been appointed regional distributor of the Magnasync synchronous magnetic film recorder, product of Magnasync, North Hollywood, Calif.

Recorder, noted for its low price of \$1275, is available for use with 16mm dbl.-perforated film, 16mm single-perforated film, or $17\frac{1}{2}$ mm film.

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(Continued on Page 89)



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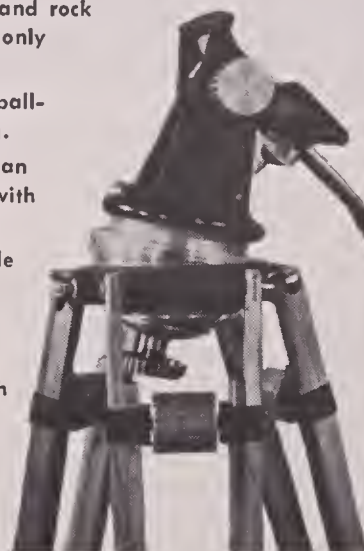
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JOSEPH LASHELLE, ASC, one of 20th Century-Fox's ace cinematographers, displays in "My Cousin Rachel" his finest camera work since "Laura," for which he won an Academy Award in 1944.

Artful photography enhances the mood
and character of . . .

'MY COUSIN RACHEL'

By HERB A. LIGHTMAN

FOR SHEER PHOTOGRAPHIC artistry "My Cousin Rachel," produced by 20th Century-Fox, represents Hollywood craftsmanship at its best. It is no mere glossy bit of technique, but a visually forceful portrayal of a dramatic story which takes place on the rugged coast of Cornwall around 1840. Cinematographer La Shelle and Director Henry Koster, working in smooth harmony, have created so strikingly honest an atmosphere of time and place pictorially that it smacks not at all of the "back lot," as so many period films unfortunately do.

"Rachel" is primarily a film of mood and character—the story of a young man (played by dynamic British newcomer Richard Burton), seduced by a beautiful widow who is half-saint and half-devil (both halves played to the hilt by two-time Oscar-winner Olivia de Havilland). Frying in the deep fat of passion, he gives her his entire fortune—then, in a fury of unrequited love, leads her to her death. We last see him brooding by the sea, still wondering whether she actually was an angel or Evil incarnate.

The force of this off-beat dramatic story stems not only from superior direction and top-notch performances, but from the violent, brooding atmosphere of the wild Cornwall coast as re-created by artful lighting and outstanding camerawork. This atmosphere pervades not only the exterior scenes, but the interiors filmed within the walls of the studio-built Cornish castle, as well. The visual treatment is all of a piece, and it rings true in every frame.

The authentic 17th Century Cornwall castle, designed by art directors Lyle Wheeler and John de Cuir, occupied nearly all of Stage 14 on the Fox lot. It was unique for Hollywood in that it was completely functional and continuous instead



PARTICULARLY realistic is the lighting of scenes in which candles are shown as only source of illumination. LaShelle had assistants play small spotlights on players and walls as they moved through the scene.

of being roofless and disjointed as most sets are. The camera could pick up people arriving by horse-drawn carriage at the front door, take them inside, downstairs and out to the rear gardens in one continuous action. Made of stone with a slate roof, it contained leaded windows, rare Flemish tapestries, knights' shields and weapons, huge stone fireplaces, candelabra and authentic antique furniture of the period. In addition, it featured interesting nooks and crannies, surfaces and textures that are a cameraman's delight.

Establishing long shots of the exterior locales were actually filmed in Cornwall by a second-unit crew. Fortunately, leading man Burton was in England at the time and available to be photographed in these scenes. The closer tie-in shots, however, were filmed in the studio quite some time later, mostly in front of the process screen. La Shelle had noted



IN OPENING sequence of picture in which LaShelle demonstrates the technique of matching the lighting of indoor "exterior" sets with that of background plates (of sea and surf) used to backdrop the scene.



FEW PICTURES display the meticulous care given to lighting of individual players. LaShelle's lighting definitely enhances the entire performance of Miss Olivia DeHavilland, star of the production.



careful lighting points up the architectural highlights of the scene without detracting from the players, at the same time maintaining the "old" mood of the story as Miss DeHavilland pours tea for her guests.



AGAIN, in the closing sequence, background plates are skillfully used to provide background for this indoor exterior scene, showing Miss DeHavilland dying on rocks following her fall from a rickety bridge.

that in all of the establishing shots sent back from Cornwall, a strong wind was in evidence—so he carefully duplicated this effect in his process scenes through the use of wind machines. The result is a perfect match between the real thing and the studio product.

In the film there are several sequences in which characters are seen walking down the somber corridors of the castle carrying lighted candles. It had to be apparent in these scenes that the candle was the only source of illumination, an effect which is usually not very convincing on the screen. La Shelle armed three assistants with small portable spotlights, and trained them to move precisely with the actor as he walked. One man cast light on the actor, while the other two trained their spotlights on the walls next to and behind him—producing a glow as uniform as that given off by an actual

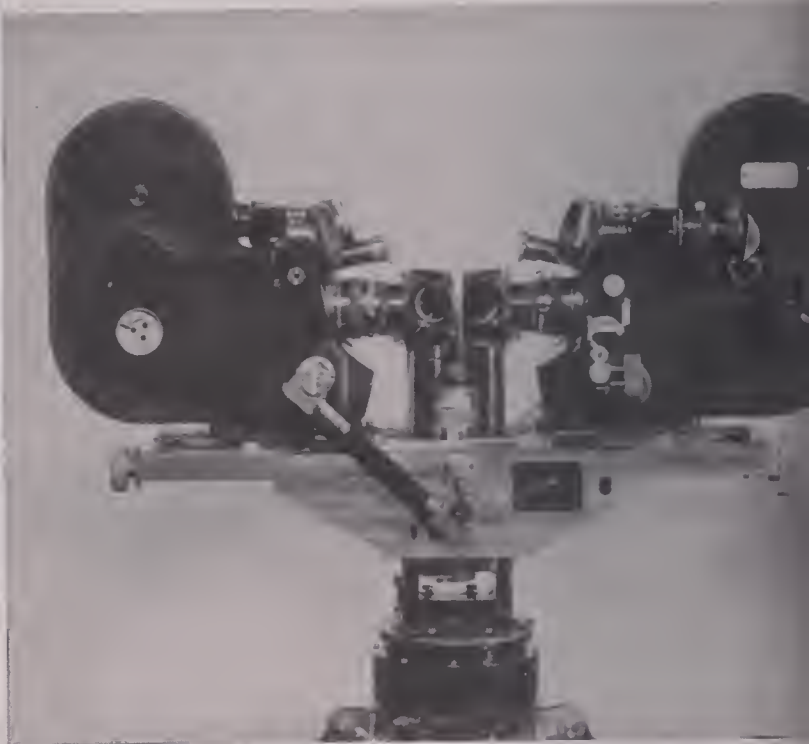
candle. It took a bit of practice before the assistants could synchronize their movements exactly to those of the actor (especially when he was ascending a winding stairway), and it was also not easy for them to stay out of camera range while doing so—but the final result is perfect.

In another sequence, the director of photography used his technical ingenuity to put across an important dramatic subtlety that actually might have proved censorable had it been portrayed with less skill and good taste. It seems that in this film the first kiss of the two main characters is no mere celluloid osculation calculated to leave the audience limp with vicarious ecstasy. Rather, it represents *the* important turning point in their man-woman relationship, a dramatic milestone which completely alters their previously

(Continued on Page 86)



KARL STRUSS, ASC, (left) and camera crew film a scene for Sol Lesser's initial 3-D color film at RKO-Pathe studios, using Stereo-Cine Corp's. camera equipment. Struss, pioneer cinematographer, is an expert on three-dimension photography.



STEREO-CINE CORP'S. initial 3-D camera equipment is built around two Eclair 35mm Camerettes, which pick up image from dual reflecting mirrors (center). Refinement claimed for equipment is the variable interocular in addition to micrometer parallax adjustment of mirrors. Company also is building additional 3-D units, one employing Mitchell BNC cameras, similarly mounted.

Stereo-Cine Corporation Is Newest 3-D Filming Organization

**Sol Lesser first to use company's new 3-D camera equipment which utilizes Eclair 35mm Camerettes.
Karl Struss, ASC, directs the photography.**

By ARTHUR ROWAN

UTILIZING THE 3-DIMENSION camera equipment of the Stereo-Cine Corporation, producer Sol Lesser, on January 9th, began production of his first stereo theatrical film in color at RKO-Pathe studios, with Karl Struss, ASC, directing the photography. The event marked the second independent 3-D film production company to get under way in Hollywood during the past twelve months; the first was Arch Oboler, who last summer filmed "Bwana Devil," utilizing another company's 3-D camera equipment.

Stereo-Cine Corporation, the newest Hollywood company to make available

3-D camera equipment to film producers, is headed by Raphael G. Wolff, whose business film studio under the same name is one of the best known in the industry, and Sol Lesser who joined with Wolff in forming the company following Wolff's extensive development of camera equipment and 3-D filming techniques. The company is a service organization set up to provide the camera equipment, technicians and consultation to film producers interested in making motion pictures in 3-dimension. The company itself produces no pictures. However, Lesser independently will, and has several productions in the

planning stage to follow his present 3-D effort.

Stereo-Cine's 3-D camera equipment resembles in arrangement the dual cameras used by Milton Gunzberg's Natural Vision Corporation, and those of the English company which produced the stereo films which were exhibited at the Festival of Britain.

Stereo-Cine Corporation's first 3-D camera equipment, for reasons of economy and a desire to cut down weight, is built around two French-made Eclair 35mm Camerettes. These cameras are mounted on a specially designed base, as illustrated above, upon which they can be moved back and forth (toward and away) from the dual reflecting mirrors in order to vary the interocular. As with other 3-D apparatus of this type, the mirrors are precision mounted on specially designed bases, and their angle may be varied by means of micrometer adjustment.

The important refinement claimed for the Stereo Cine Corporation's camera equipment, and which reportedly is not found in other similar equipment, is the variable interocular, which it is frequently necessary to employ in order that the photographed result will have no adverse effect on eyes of the audience.

Many variations of this equipment
(Continued on Page 78)

A

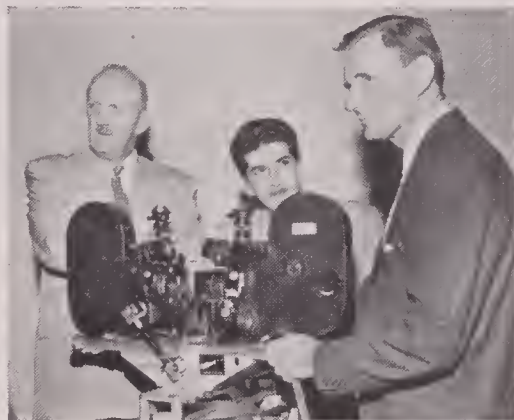
Why is the **CAMERETTE** being universally selected as the *ideal* professional camera for **3-DIMENSIONAL** photography?

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The Camerette's easy adaptability for stereoscopic photography is just one more example of its all-around versatility — that has made it perfect for studio use, for difficult locations, for use by *all* the armed forces in this country —

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Rophoel G. Wolff, president of Stereo-Cine, Inc., with stereo technicians Henry Ludwin and Vee Bodrero and two Camerettes in Stereo-Cine mount for three dimensional photography.



amerette

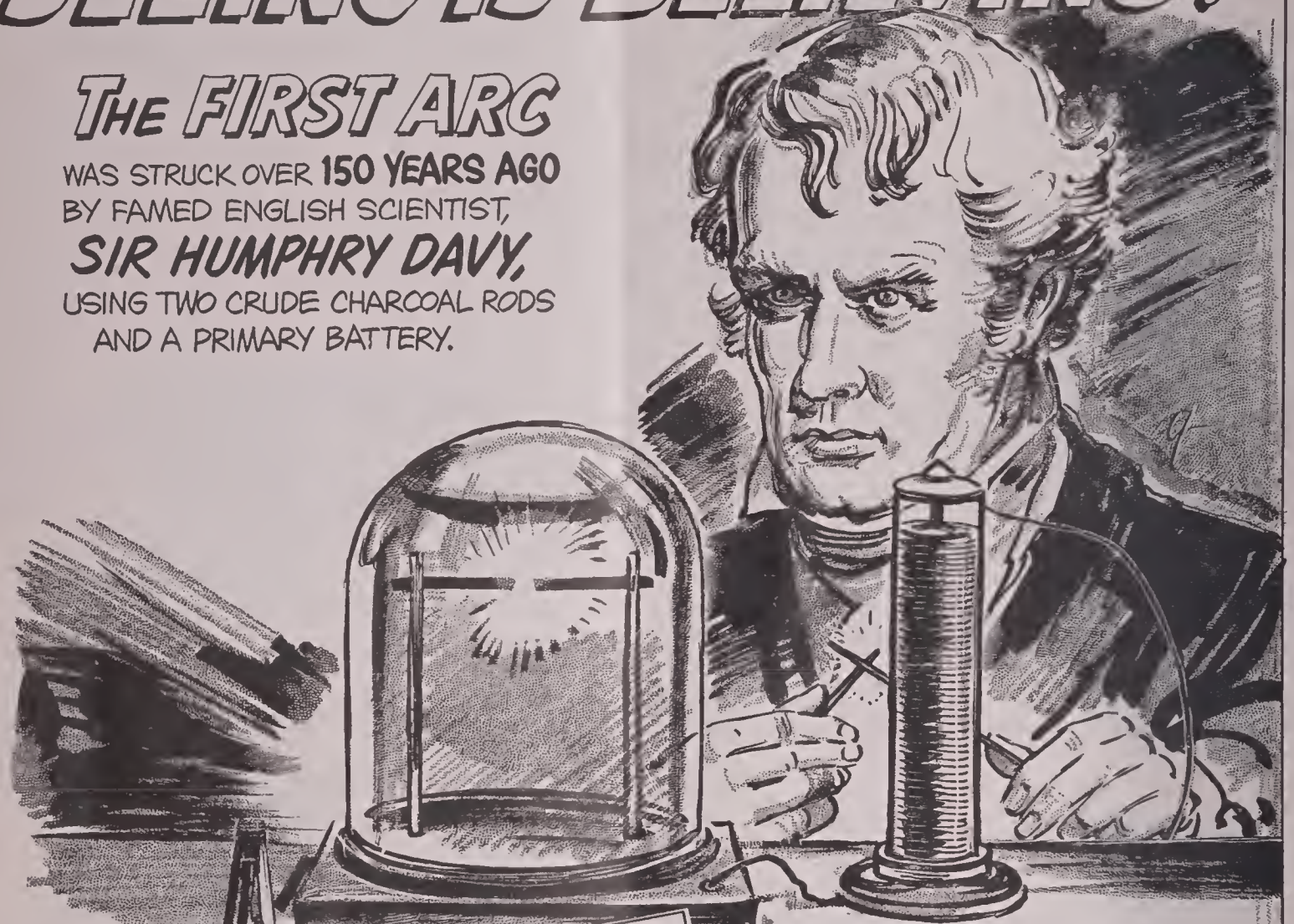
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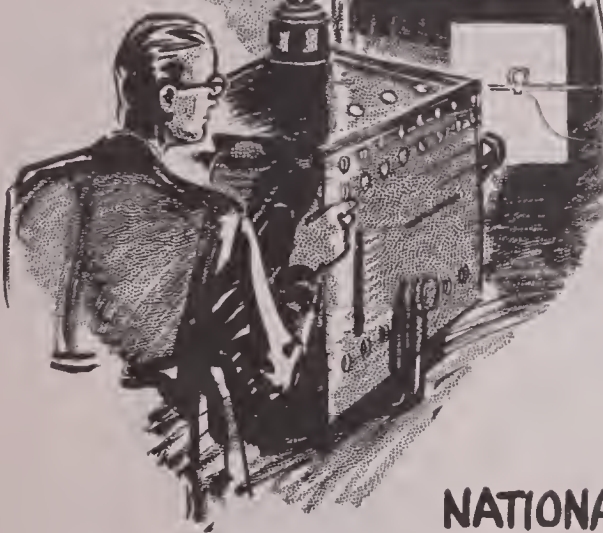
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INTELLIGENT camera movement is the result of close, careful pre-planning between the cameraman and the director. Here cinematographer Harry Jackson's camera crew execute a moving crane shot on location in Argentina for 20th Century-Fox's "Way of A Gaucho."



THE MOBILE camera is used prominently in the production of "westerns," especially in filming "chase" sequences—dramatic high point of most outdoor dramas. The camera cars are extremely rugged, and often mount three different cameras to provide ample angle shots of the action.

A SOUND PSYCHOLOGY underlies the use of the mobile camera. Movement purely for the sake of movement is an abuse of an otherwise forceful technique. The intelligent director or cinematographer moves the camera only when the demands of the filmic situation motivate that movement. Correctly used, the mobile camera produces a fluid continuity—a smoothly-flowing interplay of changing compositions within the individual scene. These compositions change and vary from extreme long shots to extreme closeups without the harshness of a direct cut. Thus the audience's attention is held without mechanical interruption to the subject-matter of the scene.

There are several types of camera movement, and each device has come to be known by a specific name. The *follow shot* is one of the most common techniques and, as the name implies, it is used to follow the action of one or more characters within the scene. Usually this is accomplished by a simple tilt or pan or a combination of the two. Frequently, however, it becomes necessary for the camera to follow a player over a wide stretch of terrain. When this is the case, the camera is mounted on a dolly or camera boom and we have what is known as a *trucking shot* in which the camera actually follows right along with the subject in his course of action.

In this type of shot the camera's motivation for movement is usually pretty

'Fluid' Camera Gives Dramatic Emphasis To Cinematography

Correctly used, the mobile camera produces fluid continuity—a smooth-flowing interplay of changing compositions within the individual scene.

By HERB A. LIGHTMAN

well established, since it depends upon and is keyed to the movement of one of the players. The effect to be desired, as in all types of camera movement, is smoothness—since a jerky pattern of movement would detract more from the scene than it would add. If the camera glides smoothly along, the audience will not be consciously aware of the movement in itself.

Another type of moving camera shot is the *pull-back*, in which the scene opens with a close-up, the camera later pulling back to present a much wider angle of the scene. This device is used where it is first necessary to focus the audience's attention on a certain small detail of the scene, later broadening the angle to show the context in which that

detail is mounted.

In the film, "The Lost Weekend," photographed with superb realism by John Seitz, ASC, there was one memorable scene of this type that opened with a striking super closeup of the main character's eye as it fluttered open, bloodshot and bleary, the eye of a drunkard. The camera then pulled back to a medium long shot of the character as he awakened from his stupor and began to stumble about the room. In this shot, the closeup of the eye was the keynote of the scene. It set the psychological mood; it focussed the audience's attention by filling the screen with a small but vital detail of the character's state of being. The initial impression

(Continued on Page 76)



WHEN FILMING the very small gas flame used in a refrigerator unit, a solution of salt water was used to increase actinic value of the flame. Agitating the flame with a fine jet of air from a small compressor gave additional pictorial interest to the detail.

AUTHOR and camera crew used home made raft on which to mount camera for a dolly shot of inventor's historic cave. Assistants on either side of stream pulled raft through water by means of ropes.



Filming A Documentary Of The Gas Industry

Getting a clear image of a gas flame on film was just one of many problems encountered in filming history of illuminating gas industry.

By JOHN R. F. STEWART, A. R. P. S., M. B. K. S.

COMMISSIONED by the Gas Council of Great Britain to make a 25-minute documentary about the history and present-day uses of coal gas, I soon discarded the old advice on story telling—"Start at the beginning, go on to the end, and then stop!"

There were a score of beginnings, the story covered hundreds of years, and there is certainly no end in sight yet.

But eventually, from the vast amount of material available, it was decided for the historical sequences to concentrate mainly on the story of William Murdoch, 18th century Scots inventor, and one of the first men to light a house with gas.

But in a film which combines histori-

cal episodes, played by actors, with documentary sequences filmed in factories and laboratories, it is important that the historical incidents should have the utmost realism.

Extensive research was undertaken to insure that props, clothes, sets, etc., were correct for each period. Museums were searched for equipment, gas apparatus and tools which might actually have been used by Murdoch or his contemporaries. Some scenes in the film, showing Murdoch experimenting with a model steam locomotive, were shot in the actual lane—at Redruth, Cornwall—where the incident really took place, one hundred and sixty eight years ago.

The original engine exists today, and

for the film an exact replica was made with one difference: a concealed electric motor, worked from a miniature hearing-aid battery provided the power; the "steam" was produced by smoke pellets in the funnel.

To help convince audiences still further that the scenes from the past are not fiction, but the reconstruction of historical fact, the film starts in the present day, at the cottage in Scotland where William Murdoch was born.

Yes, the cottage still stands today but altered and modernized and with an electric, not a gas, range in the kitchen.

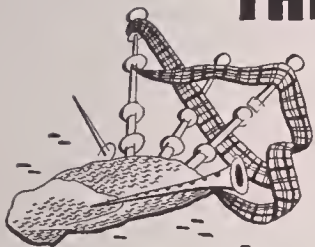
We filmed a plaque on the wall, commemorating Murdoch's birthplace, and a nearby cave, hewn out of rock, where Murdoch played as a boy. In those days the cave was easily approached from the bank, but through the years the path has crumbled away; so to get the shots, a raft was built for the camera and floated on the mill pond. Sunlight, reflected from the water on to the walls of the cave, helped to improve the pictorial value of the scene.

These scenes—of things which actually exist today—help greatly to assure an audience that the 18th century scenes in our film are also true, but a smooth and convincing transition to the past is essential.

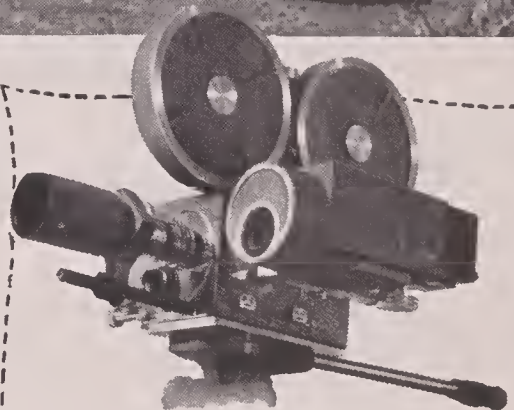
After the cottage and cave is pictured,
(Continued on Page 81)



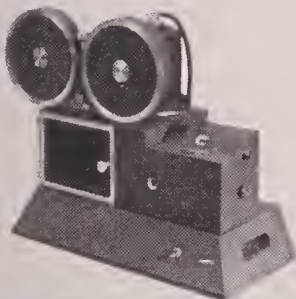
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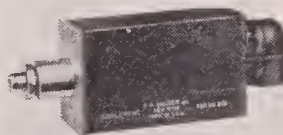
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LOW-KEY lighting, characterized by softly lit highlights, and shadows which fall off into dense black, is especially effective when used in sequences dealing with crime.

Set Lighting For Special Pictorial Effects

**An analysis of mood and effect lighting
for the student of cinematography.**

By CHARLES LORING

MOOD LIGHTING, which functions to create a psychological setting for the audience's imagination, must only be used in sequences where the dramatic structure calls for such treatment. To force it into a sequence which does not warrant so forceful a technique is to create a much-ado-about-nothing impression in the minds of the audience.

As in any other kind of set illumination, mood lighting must remain consistent with source. It is true that the source may be relatively small, such as a candle, oil lamp or an open fireplace—but the cinematographer must first ask himself: "From where is the light coming?" Once having established this basis, he can slant his lighting pattern toward it.

Many non-professional cinematographers become baffled when attempting this sort of lighting, because they walk onto the set and start arranging lights in accordance with a purely mental idea they may have of the desired effect. It is much more efficient to set up the actual situation, if possible, noticing the way the light falls, and then duplicating as closely as possible the highlight and shadow relationship in terms of artificial illumination. In order to reproduce the effect of candlelight, for instance, light a candle on the set and study the effect it creates.

As in any other phase of film production, special effect lighting should not call attention to itself. The moment the

audience begins to pay attention to the lighting instead of the dramatic content of the scene, something will be lost from the effect of the film.

Low-key lighting, characterized by softly lit highlights, and shadows which fall off into dense black, is especially effective when used in sequences dealing with crime, mystery and (paradoxically enough) love. Any dramatic situation in which human emotions are portrayed as "boiling about inside," can usually be helped by low-key.

To be truly effective, a low-key set-up should be arranged in such a way as to point up the main areas of action and play everything else down. This, of course, calls for pre-planning—therefore, the final lighting scheme should not be definitely set until the pattern of action in that sequence has been worked out.

Genuine low-key is usually lit rather softly, harsh black and white contrast being avoided. On the other hand, it does not do to use heavy fill light, as the low-key effect will then turn into a wishy-washy overall gray pattern.

In lighting low-key, the highlight areas are given normal light levels, while the shadow areas are allowed to fall off sharply. There are two schools of thought regarding the exposure of this kind of set-up. Some cinematographers advocate slight underexposure and normal printing. Others advise normal exposure, with the negative later being printed down for a darker effect. The latter theory seems to give the most favorable result, since in this way a greater amount of shadow detail is included on the film—but, in either case, one must be sure to let the laboratory technicians know the exact effect desired, or they may over-compensate in printing.

Another style of lighting having a predominance of shadow area, but with a more dynamic quality than straight low-key, is that which is known as out-of-balance lighting. This type is characterized by harsh contrast between crystal white and velvet black, with very few intermediate gray tones.

Although somewhat radical in effect, out-of-balance lighting is extremely dynamic and is especially adaptable to violent action or dramatic themes. Its stark light and shade patterns are not always flattering to feminine players, but the realistic effect it produces is very suitable for down-to-earth dramatic or documentary subjects.

The effect is achieved through the use of simple, brilliant light sources with little or no full illumination. In its more extreme forms, arcs are used to good advantage. The style differs from straight low-key in that it is much harsher in contrast and utilizes more brilliant key-light. For this reason, the "glamour" shots which are so effective in softly

(Continued on Page 77)

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FIG. 1—Image as seen in camera finder system, at point 15 in Fig. 3 at right. The photo-cell on prober (Fig. 2) is moved over area to make readings at 1, 2, 3, 4, and 5.

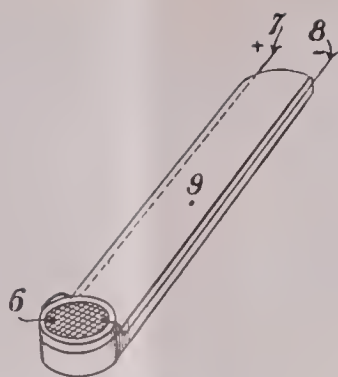


FIG. 2—Probe of the sensitometry system has small photo-cell at one end (6). Wires (7 and 8) lead to galvanometer dial, from which exposures are computed.

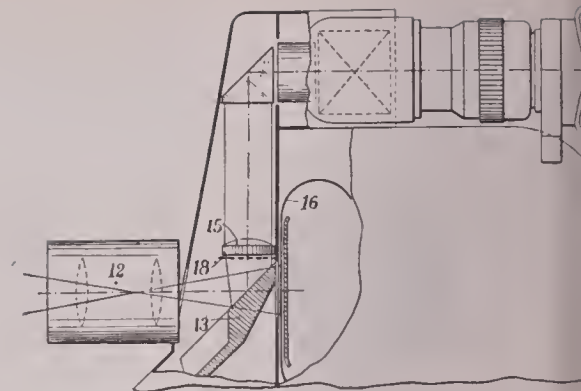


FIG. 3—Cross section of Eclair Camerette reflex shutter-finder system. Prober operates in front of ground glass indicated at 15, to read exposures of various points of scene.

A Built-in Exposure Calculator For Motion Picture Cameras

Novel sensitometry system reads light values selectively over sections of image area as seen in finder ground-glass.

A FRENCH ENGINEER and inventor, A. C. Coutant, has developed a new system of determining correct exposure for cinematography by means of a sensitometry system built into the camera itself. The invention was illustrated and described in an article appearing in the July, 1952, issue of *La Technique Cinematographique*, published in France.

Until recently, such a method of exposure calculation has been attempted only with certain cine cameras manufactured in Europe. Coutant's invention has initially been adapted to the Eclair Camerette (also known as the Cameflex), a camera ideally suited to the method by reason of its through-the-lens reflex viewfinder system.

In describing his invention, Coutant states: "It is customary for the director of photography to use a photo-cell exposure meter to measure the light of the scene to be photographed. The information given by such an instrument is only approximate, because the intervals of light reflected by a scene or subject vary from one point to another in the picture area, often in rather large proportions, so that the measurement obtained by the meter is but an average of several direct readings.

"When dealing with cinematography on the sound stage, the cameraman is

obliged to take several meter readings of the light coming from the various set lighting sources and determine the working average.

"Still another factor that deserves consideration is the way certain objects or subjects have variable reflecting qualities, depending on the colors, the brightness, diffusive quality, etc. Light may also vary with the weather and with the positions of either the subject or the camera.

"Previously, efforts have been made to obtain exposure meter readings by placing a photoelectric cell immediately behind a translucent glass situated at the focal plane of the lens, but measurements thus obtained represented only the average of the overall light transmission as reflected from the scene. Moreover, such measurements could not discriminate between the dazzling high-light areas of the subject with their tendencies to overexpose the film, and the shadow areas incapable of making an impression on the emulsion.

"The invention described here has as its object a means of measuring exactly the luminosity of all the points of the scene to be photographed, by exploring selectively, with a sensitometric probe, the whole image at a point within the optical system, as illustrated in the ac-

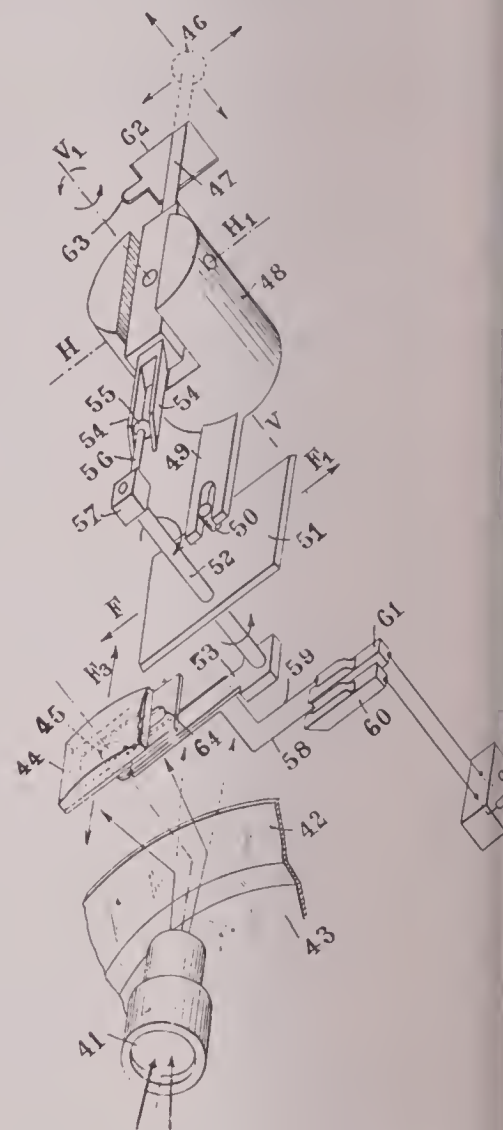


FIG. 4—Exploded view of Coutant's sensitometry system for motion picture cameras, which is fully explained in the accompanying article.

companying diagrams. This probing can be done with the aid of very small photo-cells; and the smaller the size of the cell, the smaller the sections of the picture area that can be measured.

"In short, what this method does is to permit the cameraman to obtain selective sectional readings of the overall

(Continued on Page 84)

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What The Cine Photographer Should Know About Hyperfocal Distance*

By JOSEPH WALKER, A.S.C.

CORRECT FOCUS is an absolute essential to good photography. In some types of amateur and documentary filming, minor errors in exposure, composition and lighting may at times be considered forgivable. But unless a scene is in good focus, it's of no use to either the professional or the amateur.

The professional cinematographer, of course, has a double check on his focus. First, he is able to study the actual image, right-side-up and highly magnified on a ground glass focusing screen. In addition, it is standard practice to measure the distance from the camera to subject with a tape-measure before every shot, and set the lens accordingly.

But the amateur cinematographer doesn't enjoy these advantages. Only a few 16mm or 8mm cameras permit any sort of ground glass focusing, and only a very few of these give the ground glass image magnification great enough and critical enough to permit absolutely precise focusing. Only a very few of the more careful-minded amateurs take the trouble to work, professional-wise, running a tape before each scene. And while an interconnected rangefinder would be invaluable in substandard camerawork, thus far only one amateur camera so equipped has appeared on the market. So focus remains headache No. 1 for the 8mm and 16mm moviemaker.

To some extent, the extreme focal depth of the short-focus lenses generally used on 16mm and 8mm cameras can cover up minor errors in focusing. But not always—as most users of focusing-mount substandard cameras can testify from sad experience! And even in 8mm, a scene where you'd guessed wrong in adjusting the lens of a focusing-mount camera is usually a good deal worse than what you'd have gotten under the same circumstances with a simpler, fixed-focus lens.

The answer is that the manufacturer of the cheaper, non-focusing lens has taken advantage of a very useful little optical fact and mounted the lens so that it is permanently focused at what is

called its hyperfocal setting. You can make this same optical fact work even better if you have lenses in focusing mounts. Especially when you're working under pressure, making scenes of the "grab-it-quick" type, where you want to minimize fiddling with and thinking about basic camera mechanics, you can often set a lens at its hyperfocal setting and then forget focus, confident that (at least on most normal shots) everything important in your picture will be in adequately sharp focus. But to do this you've got to know what the hyperfocal distance is, and how to put it to work.

As a matter of fact, the hyperfocal distance is a double-action affair. First of all, it is the distance at and beyond which all objects are in focus when sharp focus is secured at infinity. But also—and perhaps more important—if you focus the lens at the hyperfocal distance, everything from one half that distance from the camera to infinity will be sharply defined. If, for instance, the hyperfocal distance were 25 feet, everything from that point on to infinity would be adequately sharp with the lens

at infinity focus, while if the lens were placed at the hyperfocal setting of 25 feet, everything from 12½ feet to infinity would be adequately sharp.

The hyperfocal point is dependent upon three factors: the focal length of the lens, the aperture used (expressed as an *f*-stop) and the circle of confusion.

The term "circle of confusion" refers to the diameter of the lens' image of any given point in the subject. Theoretically, if lenses could be made perfect, the image of a point would also be a point. But in practice, not even the finest of lenses can bring the images of all wave-lengths or colors of light to a focus so precisely in the same plane that the image of a point will be a true point. Instead, some wave-lengths will come to a focus on the plane of the film, while others will be focused microscopically behind or in front of it, in either case giving an image on the film slightly larger than the actual point. The practical result is that the image of the point is reproduced as a circle, rather than as a point. Maybe it is microscopically small, but it is still mathematically measurable as a circle instead of a point.

The size of this circle of confusion therefore becomes one of the chief governing factors in the matter of image definition. Speaking generally, the finer a lens, the smaller the diameter of its circle of confusion. In the same way, if a lens is to be used for work that is not too exacting, you can base your hyperfocal and depth of field calculations on a circle of confusion considerably larger than is necessary in a lens to be

(Continued on Page 82)

HYPERFOCAL DISTANCES						
Stop.	FOCAL LENGTH OF LENS.					
	12½mm.	15mm.	25mm.	1½-inch.	2-inch.	3-inch.
	HYPERFOCAL DISTANCE IN FEET					
<i>f</i> : 1.8	11¼	16	46¼	104	185	417
2.5	8	11¼	33½	75	133	300
3.5	5¾	8	23¾	53½	95¼	214
4.	5	7	20¾	46¾	83	187
4.5	4½	6¼	18½	41¾	74	167
5.6	3½	5	14¾	33½	60	134
6.3	3¼	4½	13½	29¾	53	119
8	2½	3½	10¾	23½	42	94
11	1¾	2½	7½	17	30	68
16	1½½"	1¾	5¼	11¾	21	47

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WRITING a script for an 8mm or 16mm motion picture is a matter of planning, in more or less detail, what is to be filmed and how. The "what" is determined by the subject of the picture but the "how" is, within certain limits, the responsibility of the cameraman. And this quite apart from whether the photography is adequate or even good from a purely elementary, functional viewpoint.

A motion picture is a story told through a pictorial medium. The pictures, or scenes, that are parts of the film as a whole should each have the eye-arresting appeal that marks the work of the graphic artist, plus the in-

terpretive quality necessary to sustain interest at a maximum and unfold the story expertly. And that's where the script comes in. By planning even the most seemingly unimportant inserts, due consideration should be given to the emphasis they will put in the sequence as a whole—emphasis pictorially or dramatically.

To take a clinical case let us suppose that a story calls for a scene which shows a man climbing a flight of stairs. We want to get over the fact that the man is being most cautious not to be heard. We also want to get over the fact that the stairs creak.

When the script is written it is de-

cided that the scene is necessary because (a) it provides proper continuity between the previous and succeeding action, and (b) it is necessary to "plant," or emphasize, the squeaking stair for proper motivation in the next sequence. It is also realized, however, that the scene is of secondary importance to the story and that the opportunity for action or "business" is limited to the extent that the interest might lag if the scene is not handled with due consideration for picture value in the filming, and timing in the editing.

The problem can be resolved by filming the action thus: 1. Medium-shot. Man enters scene, takes off shoes and starts up stairs. 2. Close-up, through bannisters in foreground, of stockinged feet cautiously treading stairs. Foot is placed on stair as though trying it, and then withdrawn, then replaced again. 3. Close-up of man's face registering apprehension. 4. Medium long-shot looking down stairs. Man comes up to and past camera.

Thus, what might have been a dull or uninteresting sequence becomes an opportunity for some appealing angle shots which help "sell" the picture; emphasis is placed where it is needed and when the film is edited it will be possible to cut this sequence so that there will be a sufficient variety of shots to eliminate the possibility of "interest drag."

Another great advantage that the cineamateur will discover when he undertakes to shoot is the greater opportunity he will have for using his versatility as a cameraman. As a consequence his pictures as a whole will possess more photographic variety and charm as well as added lucidity and punch in telling their stories. By doing no more, for instance, than to plan the use of varying angles at which to shoot certain scenes will, quite often, lift a reel out of the ordinary.

It is sometimes surprising how easy it is to be monotonous photographically. Scenes that from an action viewpoint have every reason to be stimulating frequently suffer because they have a photographic sameness as endless previous scenes. And in judging the interest-sustaining qualities of a given bit of action, the experience or opinion of a mere spectator is worthless. Things just don't react the same from the screen.

An interesting example is illustrated by two films made of the same event recently by two different cinefilmmakers of the right and wrong way to make an amateur film. Unknown to each other two camera enthusiasts had turned out to film a rodeo. Both men got almost exactly the same material. Both reels were photographically excellent as far as exposures and camera handling were

concerned, but there the similarity ended.

One man turned in something that was tedious to sit through and failed in every way to convey the excitement and drama of the rodeo or do justice to the subject-matter. He made the mistake of shooting everything from a monotonous eye-level with the result that all the vitality of his subject was strained out. When he edited the film he hadn't a chance. And even the technically excellent follow-shots he made with his telephoto lens hardly helped to dispel the sense of sameness that pervaded scene after scene.

The other man opened with the same parade and filmed the same events. But with what amazingly different results! First, he filmed general rodeo atmosphere stuff. Then, instead of filming entry after entry in the same events, he took time out to think up a few ideas and made some notes. In effect he wrote a script. Simple and unassuming, but sufficient for the purpose.

Reviewing the list of scenes he had already made, and cutting the film in his mind's eye, he made a list of shots he would take. And they were the scenes that made the picture, that lifted it out of the class of stuff that the average cineamateur makes, and turned what might have been just another photographic record of a sporting event into a short-subject that would have been a welcome addition to any theatrical program.

He made human interest shots of small boys standing in open-mouthed admiration; he made another memorable shot of a rather sedate woman trying to catch in her mouth the dripping mustard from a hot-dog; and reaction shots of spectators in a whole block of seats rising to their feet, tense with excitement.

Lucky? Yes . . . in a way: he wasn't looking for just those shots but he *was* looking for characteristic atmosphere and crowd shots, was on the alert for them—and he got them. Then there were closeups of a bronc's head tugging against the restraining hands behind the gate; of pawing hoofs; of steers and lariats. The cowboys sitting on the corral fence were recorded, too, in both long-shot and closeups. So were the silver-mounted saddles for which the cowboys were competing.

These shots were photographed with every consideration for pictorial value and photographic variety. There were shots framed by heads and Stetsons and corral railings. There were birds-eye shots and worm's-eye shots. The cameraman must have made an awful nuisance of himself—but he apparently took advantage of the tolerance most people

(Continued on Page 76)

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SIDNEY P. SOLOW

Ready for occupancy the latter part of this month will be Consolidated's new 16mm film laboratory, which has been especially designed for the processing and handling of the company's growing 16mm film business.

Erected on company property adjacent to its present quarters on north Seward Street in Hollywood, the modern 3-story concrete and steel edifice becomes the largest 16mm film laboratory in the world, both in size and in film handling capacity.

The increasing demands made on Consolidated by major film producers for processing 35mm color film has made it necessary for the company to take over more and more floor space formally devoted to 16mm film processing, according to Sidney P. Solow, general manager of the company's Hollywood laboratories. Ironically, this need for added facilities reached its peak just as the television industry began making increased demands on the company for 16mm film developing and printing. Plans for the new 16mm laboratory

were subsequently rushed into preparation, and construction of the plant began early last summer.

A preview of the new plant reveals the intelligent thought that went into the planning, which will make this the most efficient film handling plant anywhere. Says Solow, "We have distilled all the best ideas in laboratory construction and practice that have been developed over the years, have shaken out all the frills, to make this the most efficient plant of them all."

The plant, 55 by 156 feet in extent and having a total floor area of 25,000 feet, has two stories and a basement. The whole structure was designed on the principal of straight-line flow of film from its acceptance to delivery after processing—with all major operations conducted on the first floor. Here are two modern fire-proof film vaults for raw stock, having scientific humidity and temperature control. Three separate printing rooms have the latest type indirect-type safelights, with different lights for each particular kind of film stock used. The film developing room on the same floor has two of the latest type 32mm (double-width 16mm) automatic developing machines. All tanks and moving parts are made of stainless steel. All plumbing used in the transmission of developing solutions is stainless steel tubing. A feature is the stainless steel quick-demountable couplings for the tubing, which permit taking out complete sections of the plumbing for cleaning and inspection.

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of development by the spray method—the only method that insures absolutely clean and unstained film, according to Solow. Just before the processed film leaves the drying cabinets, it is subjected to a protective coating. Consolidated is probably the only 16mm film laboratory which includes the protective coating as part of its laboratory service.

With 16mm neg-pos color film only a matter of time, Consolidated engineers have provided for the demands that use of this film will make on the company's facilities. The company will be able to make any changes necessary as use of this film begins, and to gradually expand its facilities in keeping with the increasing use of the film without hampering the laboratory's other operations in any way.

Continuing along on this same floor, we find the modern, full-equipped projections rooms in which all film processed by the company will be checked visually through big-screen projection before being delivered to the customer. Two 32mm projectors will be running constantly in making such checks. Afterward the film will proceed via conveyor to the hand inspectors, cutters, packers, and finally to the shipping department. The plant will have a capacity of half-a-million feet of 16mm film per day.

The second floor is devoted to customers' service. Here are a spacious lounge, two 16mm projection rooms—each with several types of screens; 20 cutting rooms, each with individual temperature control, and the negative cutting room for Republic Pictures Corp.—the parent company, incidentally.

In the basement are located the company's steam plant, air conditioning and humidifying equipment, film developing tanks, and the solutions control system.

Sidney Solow, who has been associated with Consolidated for over 20 years, says the new plant will easily care for the great expansion in 16mm film production now under way on the West coast. The company serves mainly four major groups of 16mm film producers: Business and Commercial, Educational, Religious, and Television. Solow, incidentally, has been an important contributor in the science of correct developing and printing procedure for films for television. Before satisfactory transmission of 16mm motion pictures on television was possible, it was necessary for the industry to determine the density ratios most compatible with existing electronics equipment. As a result of its extensive research and the technical assistance which the company has rendered to both film producers and TV transmission engineers, Consolidated has become a leading processor of television films on the West coast. **END**

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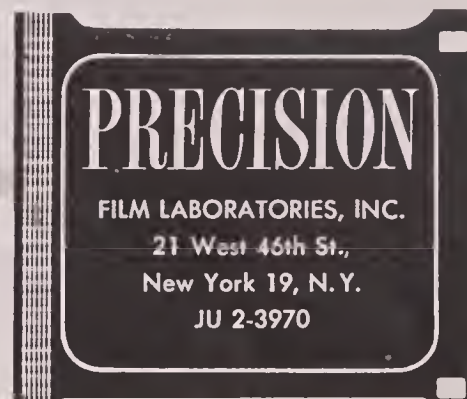
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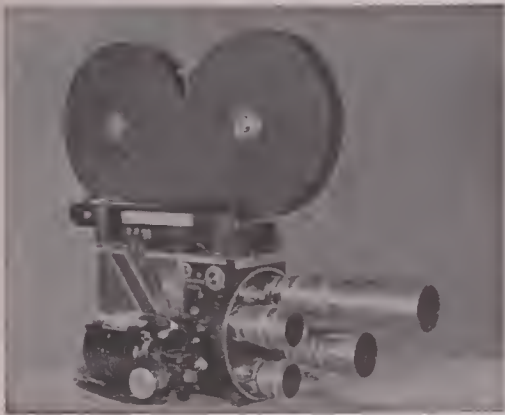
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(Continued from Page 73)

have for kids and camera addicts.

When this man edited his film he had plenty of material to work with. The brief parade sequence that opened the epic was intercut with reaction shots of kids and crowds. When action sequences weren't filmed sufficiently well in their entirety or when the action was too short or too long, he had interesting,

atmospheric cuts to fall back upon. Nothing new, or original? Certainly not! Only a splendid example of following tried and true professional methods and formulae to make a picture more entertaining. And movies—whether professional or amateur—will always "pay off" on the amount of entertainment they offer audiences! **END.**

'FLUID' CAMERA

(Continued from Page 63)

created by that closeup carried over to the remainder of the scene and influenced the audience's reception of what followed.

A corollary to this type of shot is a device in which the camera first shows a long shot of the scene and then pushes in to a close shot of a certain segment of the action. This is a widely used type of camera movement and has the effect of first orienting the audience as to locale, action, and period, before moving in to treat dramatically a smaller part of the overall scene.

A variation of this technique is the *zoom* shot, in which for dramatic effect the camera first shows a relatively wide angle of the scene, then rapidly pushes or zooms in to a close-up of a specific detail of the scene. The zoom shot, when correctly used, is a dynamic way to focus audience attention on a dramatically important facet of the scene.

Except in a travelogue, it is not considered effective technique to pan a static object—although many film-makers have done so in an effort to force action into an otherwise dead scene. At best this is a forced technique and should be avoided except where inserted for special effect. Mere movement of the camera can never compensate for a lack of action within the scene.

Occasionally in a photoplay, the camera—in its role of all-seeing eye—becomes a wandering reporter, browsing here and there to pick up bits of action and characterization, then moving on to select other facets of the situation, the sum total of which adds up to the creation of considerable atmosphere. A notable example of this technique was used in the memorable film, "Casablanca," photographed by Arthur Edson, ASC. In the sequence establishing the interior of "Rick's Cafe Americain" (main locale of the story), the camera picked its way through the crowds, stopping at various tables just long enough to pick up scraps of color and atmosphere, then

moving on. It moved exactly as a casual observer might move if he were threading his way through the maze of tables, catching a glimpse of this person or that and overhearing an occasional shred of conversation. The effect in the film was to set the unusual mood of this exotic locale, to identify the types and characters involved in the story, and to prepare the audience for the action that was to follow.

In studio parlance, whenever the camera moves and comes to rest on a new composition, the maneuver is known as a *camera stop*. Certain scenes, especially in musical extravaganzas, involve a great many camera stops. In fact, when this type of film was first becoming popular certain directors and cameramen (as a matter of professional achievement) used to vie with one another to see how many camera stops they could get into one continuous scene. Actually, if well done, this type of scene is more effective than a series of cuts in portraying a musical number, but when camera movement becomes an end in itself, the result is bound to be clumsy and without meaning.

One otherwise competent director of musicals and light comedies used to insist that the camera be moving in every scene. He would have the camera pushing in, pulling back, zooming down from the sky or up from the ground, whether the scene required camera movement or not. In one film this particular director shot—a film containing well over 300 scenes—there was only one scene that was absolutely a static shot. Audiences left the theatre after viewing this film complaining of headaches from being "whirled around so much."

At the other extreme was an equally competent director of dramatic themes who insisted that the camera should never be moved. His compositions on the screen were particularly forceful and artistic, but he was reluctant to move

the camera for fear his careful composition would be destroyed. As a result, his action within the frame was stilted, inhibited, held back. You could almost sense his players watching for the chalk marks on the set floor so that they would not step outside the bounds of the static frame. In one drama that this director shot—a film crammed full of artistic and static compositions—there was only one short *follow shot*. The result on the screen was a static drama.

Obviously, intelligent camera movement is the result of close, careful pre-planning between the director and cameraman. The director, in his interpretation of the author's screenplay, plans his action and consults with the cinematographer as to how that action can most effectively be portrayed on the screen. Often it is found that a series of consecutive compositions can be embodied in one scene and connected by well-motivated camera movement. The resulting scene (which otherwise would have been staged as a series of short choppy scenes) becomes a *fluid* continuity of changing compositions that move smoothly, one into the other.

The fluid camera is a device that belongs peculiarly to the photoplay. It has the quality of action that is essential if motion pictures are to be truly "moving" pictures. Skillfully used, camera movement gives the motion picture unlimited scope to select and present on the screen the various elements of the story in dramatic and forceful relationship to one another.

SET LIGHTING FOR SPECIAL EFFECTS

(Continued from Page 66)

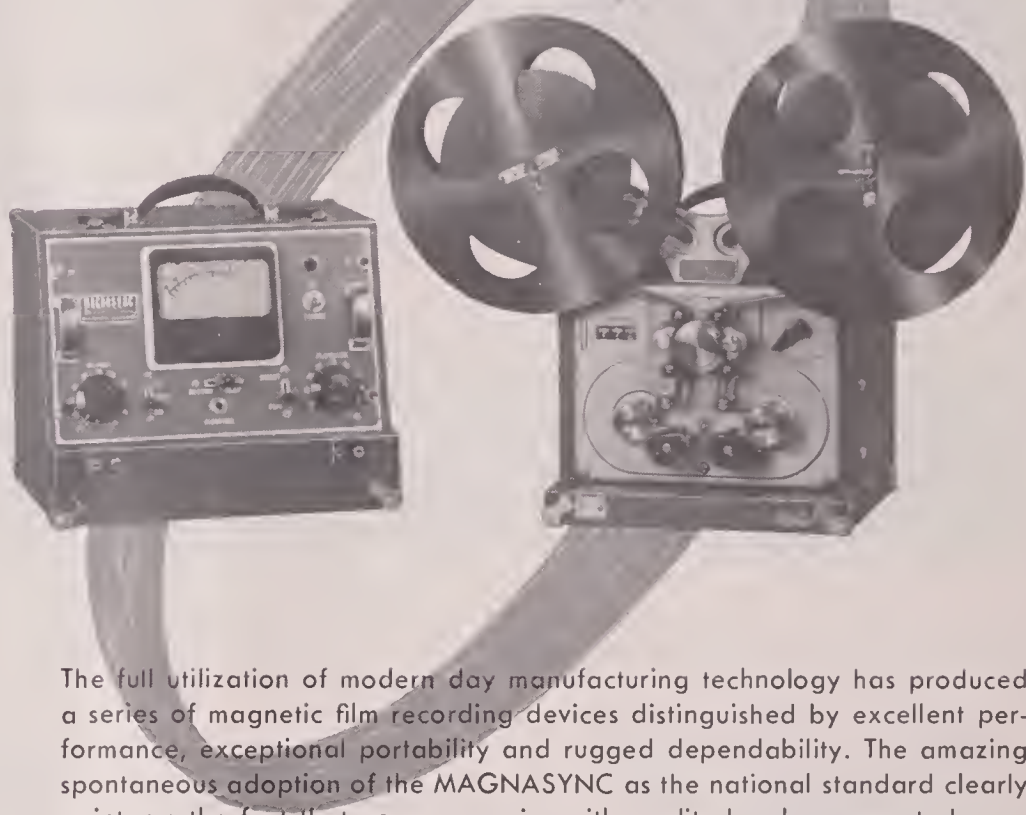
diffused low-key are almost impossible to achieve in out-of-balance illumination, but the style is most valuable for the illusion of unvarnished reality which it produces.

Many film-makers fail to take advantage of the fact that lighting consists not only of highlights, but of shadow as well—and that, skilfully used, shadows can be used with striking effect to point up a screen story.

Basically, shadows give depth and modelling to a subject. Where a set is over-lit in such a way that most of the shadows are cancelled out, the result is usually flat and undramatic. But shadows carefully controlled and with suitable fill give roundness and perspective to sets and players.

Shadows can be used to create attractive and dramatic backgrounds. Card-board cut-outs placed in front of a spot light are the simple materials necessary to project such patterns as prison bars, church windows, venetian blinds, etc. In

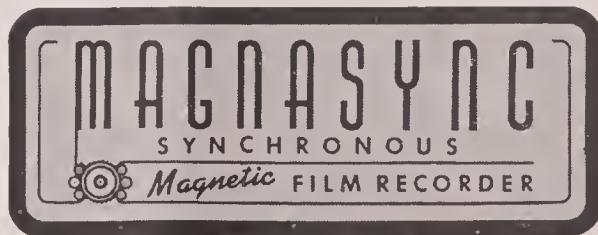
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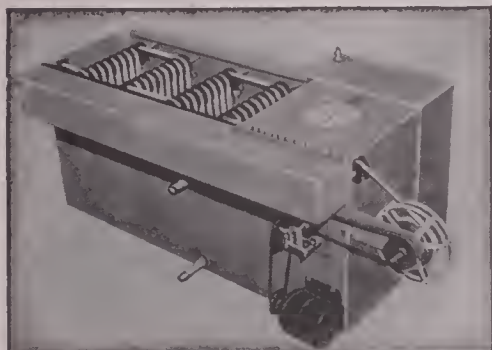
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this way, the suggestion of a full set can be projected upon a bare wall or flat, an interesting pictorial background can be achieved, and cinematic mood can be intensified.

Often shadows are used to suggest an active force threatening a character in the story. A player spotlighted in one corner of the screen with a dark mass of shadow engulfing everything else, will convey the impression that the character is being threatened by unknown hostile elements. In a chase sequence, high shadows that dart about with the fleeing character will intensify the furtive nature of the chase.

Sometimes moving shadows can be highly effective, as in a scene where the shadows of trains, cars, or people intermittently cross the players. A light going on and off outside the window of an otherwise dark room creates a highly kinetic effect.

Plane lighting is a style of set illumination in which shadows play a dominant role. This is the kind of pattern in which specific areas and planes of the set are illuminated, the rest being allowed to go dark. The players, moving from one area to another, alternately pass through highlight and shadow in a way which is dramatically striking.

Silhouette too, is an effective way to use light and shade. It is especially good on close-ups in which the characters are shown in profile. It is useful in emphasizing dialogue where the visual image would otherwise interfere. It also is a good way in which to play down one character in contrast to another who is brightly lighted.

There are several special effects which apply to situations that are bound to come up in the course of the average lamplight, firelight, flashlight, etc. We shall analyze methods of stimulating these effects with a minimum of lighting units.

Candlelight—For medium shots where the light source is not shown, use a small, unshielded No. 2 photoflood placed in the center of the table and screened from the lens by one of the characters in the scene. This will produce an overall glow, stimulating the light source of the candle. For a long shot, where the candle is seen, use spotlights (one for each character) cross-played at "candle level" and condensed with snoots or barn doors. There should also be a spot played downward from directly overhead. For close-ups, use a baby spot or "Dinky Inky" (with light diffused scrim), placed a bit below eye level.

Lamplight—Almost the same set-up as for candlelight (only somewhat brighter) in stationary shots; but when the character moves about the set, a small high-intensity "peanut" bulb can be fastened

to the lamp itself on the side not facing the camera. Use an auxiliary spot, focussed softly, to follow the movement about the set as well.

Firelight—Naturally, the fire itself should be the "hottest" part of the scene in angles where it shows. Therefore it is well not to overlight the rest of the scene. For reverse angles, not showing the fire, place your key-light low in the fireplace, simulating the natural source. Use floods or spots with fairly wide diffusion. The flickering effect of firelight can be achieved quite naturally by waving a small leafy twig in front of the light.

Flashlight—This effect is simulated by means of a baby spot with a concentrated beam, located outside camera range. The operator must be careful to synchronize the movements of the spot to fit those of the flashlight itself.

Matchlight—In scenes where the character is portrayed as lighting a cigarette the glow can be simulated either by (1) fading in a concentrated diffused baby spot on the subject's face, or (2) by concealing in the subject's hand a tiny "dashboard" type auto bulb which will give just enough of a glow to simulate the matchlight effect.

The above are the simplest special lighting effects to set up, and also the ones which the advanced amateur or semi-professional will encounter most frequently in his shooting. It is well to remember that a good special effect should go unnoticed as such. In any event, where the effect seems too difficult to achieve realistically, it should be discarded and the action changed to accommodate a simpler and more natural effect.

The above article is condensed from "The Cinema Workshop," by Charles Loring.

STEREO-CINE 3-D

(Continued from Page 60)

have been experimented with, according to Raphael G. Wolff, who said that at least in theory anyone can build such a device, using any of several available makes of cameras.

"The ability to use this equipment properly," he said, "is based on a mathematical computing system which takes into account set depths, focal lengths of lenses, and other relevant data."

Stereo-Cine's camera equipment has the advantage of extreme compactness and light weight. The complete unit is smaller in size and weighs less than a blimped Mitchell BNC. At the same time, the Eclair Camerettes used are said to afford advantages not found in many other 35mm motion picture cam-

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eras. Most important perhaps is the reflex shutter system which permits viewing the scene through the reflex finder as the picture is being shot—enabling the operator to keep an accurate check on alignment.

Shooting 3-D pictures requires precise alignment of the cameras, because adjustments for parallax and interocular must be exact. Once the camera position, angle, etc., has been decided, focusing and alignment of the twin Camerettes is done by means of special loupes which fit over the film aperture in the gate of the camera with the film magazines removed. Additional alignment checks are made through use of the finders, and there is also a Mitchell type finder situated just below the reflecting mirrors, affording the camera operator a magnified, right-side-up view of the scene at all times.

In the spring of 1947, there was begun at the Raphael G. Wolff Studios in Hollywood, the first experiments in 3-dimensional films. The original plan was to make the medium available to the company's commercial clients. Late in 1951, the company decided to organize a stereo department. It assigned two of its engineers to develop a stereo camera device for 35mm. The project was speeded later in 1952 when an import-

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ant client agreed to sponsor a stereo film. Tests made with the company's equipment last summer in both black-and-white and color proved highly satisfactory. About this time, due to the advent of "Bwana Devil" and Cinerama, attention of the theatrical world became focused strongly on stereo films. Wolff Studios suddenly found themselves on the proverbial ground floor, with one of the few technically acceptable 3-D cameras. Interest on part of Sol Lesser led to formation of Stereo-Cine Corporation, and the start of his initial 3-D production in color, using Eastman Color negative.

In explaining the differences in techniques between 3-D and 2-D motion picture photography, Raphael G. Wolff said: "If flexible camera equipment is used in photographing stereo films it is possible to place objects in space in their proper relation to the viewer. This is the essence of space control. Within reasonable limits we can dictate the placement of the screen plane or window. When flat film composition and lighting are used, this has inherent complications.

"In flat pictures, whether movies or any other kind of photographs, paintings or drawings, we have become conditioned to cut-offs. We subconsciously adjust for this by rationalizing that the person or object is behind a frame. In stereo films the same naturally holds true—for things behind the window; but if we place an object or person ahead of the window—the image appears to have been chopped off square and hung suspended by some sort of levitation. This is disturbing to our sense of logic, and the suspended object calls attention to itself. In short, it is bothersome.

"By this token, the minds not ready to accept stereo as a new medium, claim that nothing should be brought forward from the window. This is not a valid critique, and is more likely based on the inability to control images properly—indicating equipment of limited versatility.

"We can put no such restrictions on 3-D techniques for the simple reason that if the medium is to develop as it should, it will eventually lead to drama in depth—in which the window is subjugated for action that happens just ahead of the viewer and on back to infinity. This will mean new lighting and staging techniques where objects in the foreground are shaded off so that they no longer appear as severed swords of Damocles, elimination of conventional hard screen edges, and an enlargement of the reflective area to a point where it bleeds off at the extremes of the angle of human vision. The panoramic screen in which the vastness of background detracts from intimate action can be

modified by vignetting down the broad expanse and focusing attention on such intimacies by bringing them out into the audience.

"Although we may be a long way from this point as yet, it is entirely possible that 3-D presentations of the future will utilize specially designed sets for better control of people or objects in space. For closeups and the foreground of action that takes place just a few yards from your eyes, sets may be dispensed with to focus consuming interest on a stage that seems an extension of your own imagination.

"While montages, extreme cuts from close to distant images or visa versa, and the dissolve, are not as practical in 3-D at the moment—it is well to remember that these are devices of the flat film, and eventually may be no more missed than the stage "aside" or the curtain between the acts of the legitimate theater. Each new medium develops its own devices to achieve transitions and dramatic effects.

"There is one aspect of the technique which defies slide rules and measuring tapes: this is the thinking and planning in depth which must precede production. It is not practical to take a script prepared for an ordinary flat film and shoot it in 3-D. Many moves, angles and effects common to conventional motion pictures are not possible, or even desirable in stereo films. Any stereo film which makes the best use of the new medium will have to be re-edited somewhat to make a flat film release.

"One of the simplest points of difference between the two mediums is that 3-D scenes must all run longer than the average movie scene. One will find that one's eyes will tend to hold on the

ADV.



"It was suicide, alright—he got into a poker game and lost his KINEVOX."*

(*Leading portable synchronous magnetic recorder.)

normal 3-D scene, and scout the planes of depth reference as the action occurs. Another thing: short, extreme cuts do not work out; neither very short scenes cut together as flashes, or cuts from extreme closeups to extreme long shots. It takes the eyes an appreciable moment to accommodate for the change. It is best to lead from close, through medium to long shots. But here again, the feeling of actuality experienced by the audience more than makes up for the variance in techniques, which we in the industry will all have to become accustomed to."

FILMING A GAS INDUSTRY DOCUMENTARY

(Continued from Page 64)

the film continues with shots of a nearby lane. While the commentator tells how it might have been along this very lane that young William set out to gain fame and fortune, a distant figure in 18th century dress slowly appears. He pauses for a moment to look back and then walks slowly away in the distance. It is no surprise, after this shot, to find that we are back in 1777, and Murdoch is being interviewed for his first job in Birmingham.

From here, the film follows the progress of gas through the years, back again to the present day, when research into new and more efficient uses of gas is covered, and the final sequences depict the many ways in which gas is employed in industry.

To improve the actinic value of the gas flame, two methods were used. For small gas jets, such as in kitchen ranges, applying a spray of salt and water to the flame made the gas burn with the bright red sodium color, which photographs well. For large gas installations, such as in the reconstruction of the Lyceum Theatre demonstrations, benzole was injected into the main gas supply line, and this, too, considerably increased the photographic value of the light.

But a special difficulty was met in trying to show how a gas-operated refrigerator works. Here the gas is only visible as a single small flame about half an inch high. Even when brightened with salt and water solution, this flame was scarcely visible. The answer to this problem lay in directing a small current of air on to the flame, with an airbrush spray. This gave the flame just enough movement for it to catch the eye and to show clearly exactly what it was.

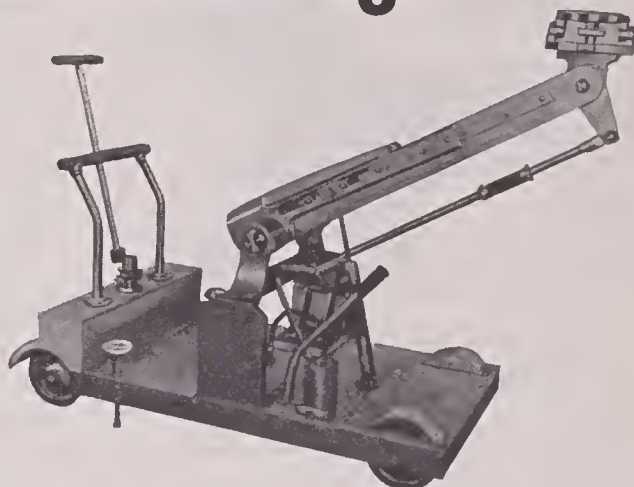
An earlier scene shows Murdoch experimenting by putting small red-hot pieces of coal in the bowl of his pipe and lighting the gas which is given off. However well the experiment may have worked originally, a surer and brighter flame for filming was given by carbide

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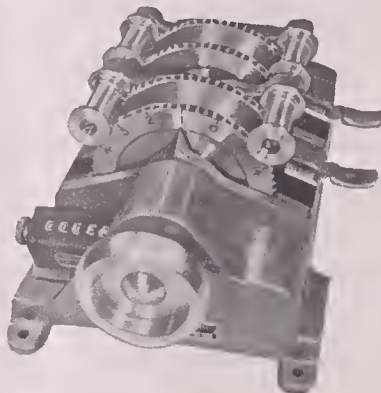
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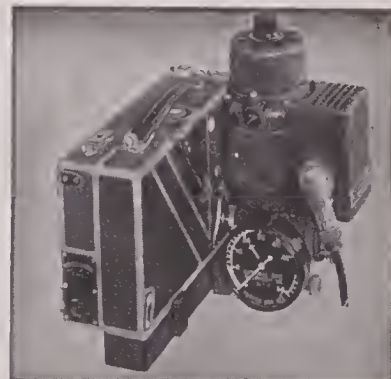
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The glow given by the elements of a domestic gas fire was filmed satisfactorily at $F/2$ on Plus X, but it helped if the gas pressure was above normal so that as large an area of the fire as possible became red hot.

In filming the use of gas in industrial processes, it was necessary to cut down the air which is normally mixed with the gas, so that it burned with a yellow instead of with a blue flame. This was especially true when the manufacture of dentures was filmed. Here were rows of bunsen burners, each normally giving a blue flame, almost invisible to the camera. Each Bunsen burner was adjusted to cut out the air so that the flames then caught the eye immediately the scene appeared on the screen. Of course, the burners cannot actually be used like that, but the adjustment back to blue before the work commences was shot in big close up, so that the flame can still be clearly seen.

Location and exterior shots for "The Vital Flame" were filmed with a Newman Sinclair Camera having Cooke Panchro lenses, and some of the studio scenes were shot with a Debie. Lighting was by Mole Richardson 2 KW., 1 KW and 500 watt units. Film stock was Plus X.

The completed film, available on both 35mm and 16mm joins the extensive film library of the Gas Council and is available to approved borrowers on free loan.

HYPERFOCAL DISTANCE

(Continued from Page 70)

used for exacting work like cinematography. For still-camera work, for example, and even in some calculations for 35mm cine work, a circle of confusion .002 inch in diameter may be quite acceptable; but for really professional 35mm cinematography, and for all 16mm and 8mm cinematography (in which the relative enlargement in projection is much greater than in 35mm practice) the permissible circle of confusion must be taken as .001 inch.

The accompanying table gives the hyperfocal distances for the most commonly used substandard camera lenses over the general range of stops. But it is easy enough to figure out the hyperfocal point for any lens and stop for yourself. The formula is:

$$H = \frac{F^2}{f \times C}$$

In other words, the hyperfocal distance (H) equals the focal length of the lens (F) multiplied by itself and divided

by the product of multiplying the f -stop (f) by the circle of confusion (C). You can see that for any one lens, two of these factors—focal length (F) and circle of confusion (C)—remain constant. The other two may vary, and therefore influence each other.

Now let's see how this works out in practice. Suppose we have a 2-inch lens and use it at $f:2.5$. Assuming the circle of confusion to be .001 inch and substituting these numerical values into our formula, we have "H" equal to 2×2 divided by $2.5 \times .001$. This works down to 4 divided by .0025, and gives us 1600 inches or 133 feet. If the lens is focused at the 133-foot point, everything from a point about 65 feet from the lens to infinity will be sharp.

Now, let's stop the same lens down to $f:11$. This will give us 2×2 divided by $11 \times .001$, which evolves to 4 divided by .011 and in turn works out to a hyperfocal distance of 363 inches or 30 feet. At this setting, everything from 15 feet to infinity will be adequately focused.

For contrast, let's consider a very short-focus lens, like the $12\frac{1}{2}$ mm lenses used on 8mm cameras. Working it wide open at $f:1.9$, the formula would figure out as $.5 \times .5$ divided by $1.9 \times .001$, which comes down to .25 divided by .0019, and gives us 131 inches or 10.9 feet as the hyperfocal distance for this lens at this wide-open aperture. Using the same figuring for the same lens stopped down to $f:11$, we find the hyperfocal distance in this case has moved up to $13\frac{1}{4}$ feet from the camera. No wonder we get such remarkable results with fixed-focus eight!

But there are times when we may want to obtain adequate focus on some

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secondary object or person nearer the camera than either the principal subject or the hyperfocal point. Or we may want to let our far limit of good focus fall short of infinity, to eliminate a disturbing background. In this case it will be useful to know something about depth of field, and how to make it work for us. Technically, depth of field means the distance between the nearest and farthest objects in acceptably sharp focus.

If you're mathematically minded, you can determine these two points by the following formulas:

$$\text{Near} = \frac{D \times H}{H + D}$$
$$\text{Far} = \frac{D \times H}{H - D}$$

In each case, D represents the distance from camera to object, and H represents the hyperfocal distance under the particular conditions of stop, focal length and circle of confusion applying to that particular shot.

To illustrate this, suppose we use the 2-inch lens we've been talking about, at its maximum aperture of f:2.5. We've already found the hyperfocal distance for it—133 feet. Assuming our object is 40 feet from the camera, we get this equation:

$$\text{Near} = \frac{40 \times 133}{133 + 40}$$

This equals 5320 divided by 173, and gives us approximately 30 feet as our near limit of good focus by applying the second formula, which works out as 4x 133 divided by 133—40, or 5320 divided by 93, and gives us 57 feet as the far limit of good focus.

Since the hyperfocal distance is a basic factor in these calculations, and it, in turn, varies according to the focal length of the lens and the stop being used, a little work with pencil and paper will show you just how and why the depth of field increases as the focal length decreases or smaller stops are used, and why with longer-focus lenses, or larger apertures, the depth decreases.

An understanding of these two simple optical factors—the hyperfocal distance and depth of field—can go a long way toward simplifying your focusing problems. As I said at the start, once you know how to put the hyperfocal distances to work for you, you will know how, and to just what extent you can make any cine lens serve in an emergency as a fixed-focus, though not always universal-focus lens.

And when you have familiarized yourself with the depth of field characteristics of your lens, you'll find you can make this factor work for you in two ways, as the professional does. When you want "pan-focus" or extreme-depth effects,

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you can get them by using a short-focus lens well stopped down.

And when—as in making close-ups and the like, you want to focus selectively, so that your picture will concentrate attention on the subject, without intrusion from either the background or the foreground, you can do that by using longer-focus lenses and larger openings.

Neither a hyperfocal setting nor reliance on depth of field can ever altogether take the place of precise focusing on the subject. But they can come in mighty handy in emergencies!

Naturally, the figures that can be de-

rived from these formulas can be reduced to the form of handy charts or tables. In fact they have been, and frequently, in such reference works as Jackson Rose's "American Cinematographer Handbook." But sometimes you may find yourself caught in the field, wanting in the worst way to know the answer to some problem in this line, only to find that your chart is in the camera-case five miles back! And at a time like that, you'll be well ahead of the game if you know how to figure out the answer for yourself instead of relying on a hazy memory of figures in a table you probably glanced at only casually. END

A BUILT-IN EXPOSURE CALCULATOR

(Continued from Page 68)

scene, as reflected through the camera, through an ingenious device which permits these sectional measurements to be made of the scene without taking a conventional exposure meter into the scene to measure each section of light and dark and intermediate areas.

Mr. Coutant goes on to say: "The sensitometric exploration can be made in the focal plane of the lens on the same size image as the exposure opening; the exploration of the surface of the ground glass between the lens and this (focal plane) surface thus corresponds to the same surface of film emulsion as checking the frame on ground glass, or the reflex vision on the ground glass as seen in the viewfinder during picture taking. This translucent glass can be placed at 90° in relation to the exposure opening in such a way as to receive the image without parallax, as in the 35mm and 16-35mm Camerette.

"It is likewise possible to explore the image of the subject in front of the ground glass, using a sensitometric reader attached to the camera or independent of it. In the latter case, the sensitometric finder can be used to measure the photogrammes to be printed, the illumination and brilliance of the background, etc., by moving the photo-cell probe in front of the section to be explored. The light measurements are read from a small galvanometer dial shown in Fig. 4 just below components 60 and 61.

At this point it might be well to examine all diagrams accompanying Mr. Coutant's treatise and which have been reproduced here. Taking Fig. 3 first, as a means of orienting the reader as to the method of installation and use of the sensitometric reader, here we see the unique reflex-mirror shutter system of the Camerette which permits through-the-lens viewing of the scene as it is being photographed. In this camera, the tip of the prober (Fig. 2) with its small photo-cell would be installed in front of the ground glass convex plane of the camera, indicated in the illustration at 15.

Fig. 1 shows a typical image as seen on the camera's finder screen. The circles 1, 2, 3, etc., indicate the points read by the photo-cell prober, shown in detail in Fig. 2. The entire mechanism of the selective sensitometric reading device is shown in the exploded diagram, Fig. 4.

"When the camera is set up for shooting a scene, the image of the scene appears on the finder glass of the camera, as shown in Fig. 1. Examining this

scene, we find that it is composed of various areas of light and shade in varying degrees. The photo-cell obviously would record the window area (1) as strong in light, while that part of the scene under the table (5) would be weak. Light on the different parts of subject's face (2) would vary according to the illumination used.

"To make a direct-line meter reading of the subject in this same scene with a reflected light meter would produce

a questionable result, depending upon its orientation to different points of the scene—points not necessarily included in the area to be photographed. If the illumination is by artificial light, it will be necessary to take a reading at different points within the scene and then figure the average.

"With the invention described here, the brightness of the image or scene is examined in the camera, between the lens and the ground glass, with the aid

Novel Aid For Exposure Meter Users

FOR YEARS PROFESSIONAL photographers have been using home-made Neutral Gray Cards for improving accuracy in exposing color film. Recently a large film manufacturer has made available a "gray card" for this purpose in an effort to simplify the use of an exposure meter for color photography. This card had to be a compromise for all the meters in the field. Even with this compromise, however, the improved reliability of the exposures obtained made it an invaluable tool.

Now DeJur Amsco Corp., makers of DeJur exposure meters, has designed and printed a special card carefully



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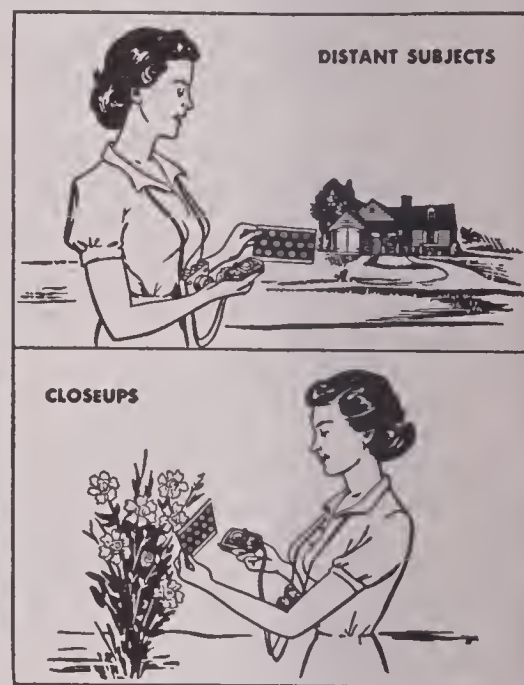
mated to its Dual-Professional Exposure Meter. A totally new design makes this formerly bulky device pocket-sized for convenience. The polka-dot design was carefully computed to have the exact amount of white and black which would average out to the equivalent of an average subject. This average subject is situated half-way between the brightest and darkest subjects on a logarithmic scale.

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For distant subjects, it is only necessary to hold the card upright and take an exposure-meter reading from the



May be used for closeup or distance readings.

card. As long as the subject and the card are in the same light condition (both in sunshine, for example), the reading will be accurate. For closeups of small objects like flowers, the Polka-Dot Target is a real help. The angle of "seeing" of the photoelectric cell in the Dual Professional Meter takes in a wider view than a small flower can fill, hence the meter may be reading a large area of background foliage which is unimportant. By holding the Polka-Dot Target close to the flower and reading it instead of the flower, a far more accurate exposure will be obtained.

Indoors the Target will find many uses too. Here it must be held as close to the subject as possible because the light varies from place to place rather quickly. Users of the Dual-Professional Exposure Meter may now take advantage of this well-known professional trick in obtaining easily and quickly accurate exposure for color photography.

of photo-cell prober, shown at 45 in Fig. 4. This exploration controlled by the galvanometer gives, for example, five values for the positions 1, 2, 3, 4, and 5 chosen as the principal points of reading of the image. In this way the exact light values of these different points of the scene are known and, by comparison with the curve of sensitivity of the film used, in which light densities are carried in ordinate and logarithm of luminosity in abscissa, the opening of the lens, the time of exposure, etc., can be chosen to get a more or less correct exposure in Zone II of the sensitivity curve.

"Figure 4 shows a method of employing the invention in a motion picture camera having a lens which can form an image either on sensitized film or on a ground glass located at 44, when the rays are hidden by the reflecting surface (42) carried by the shutter (43).

"The photoelectric cell (45) can be moved in front of the image formed on the ground glass (44) by means of a control button (46). A movement of the control toward the right or toward the left, the same as a movement upward or downward, produces a corresponding movement of the cell toward the upper or lower part of the image.

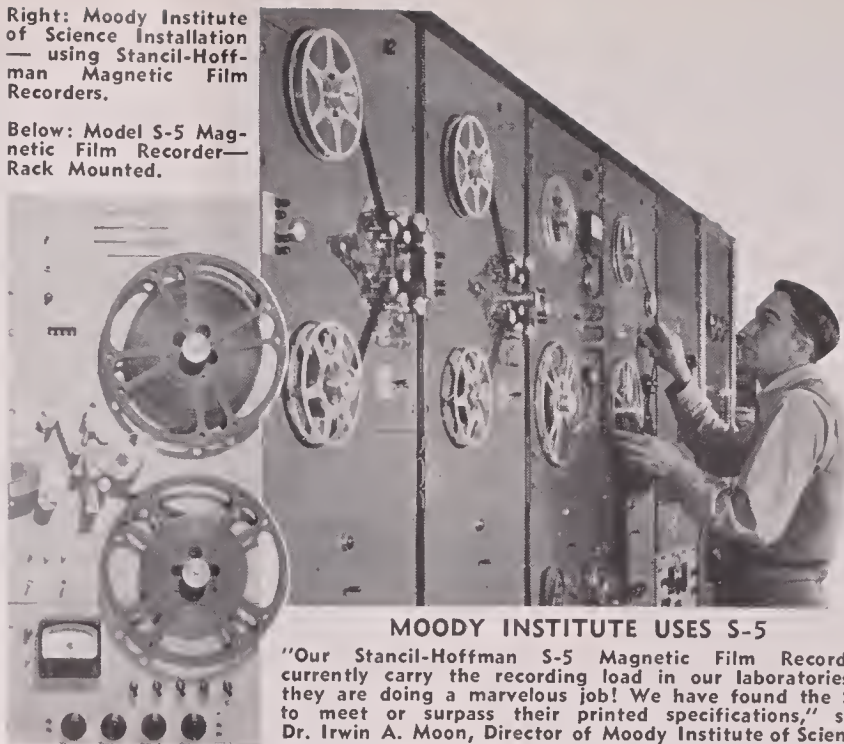
"For this purpose, button (46) is at the end of an arm (47) engaged in a cylindrical part which is mounted in a socket, not shown, in the interior of which the arm can pivot around the vertical axis V-V1; this piece (48) carries a fork (49), between the fingers of which a teat (50) is engaged, integral with a plate (51), which is mounted in the apparatus in such a way to be able to slide transversally according to arrows F-F1; a rod (52) is integral in translation to this plate (51) and carries along with it arm (53), at the extremity of which is fixed the photoelectric cell (45).

"It should be noted that a movement of the control button in a certain direction causes cell (45) to move in the opposite direction, which to the observer appears to be a movement in the same direction, it being understood that the image is inverted.

"Arm (47) is able to pivot in the interior of piece (48) around a horizontal axis H-H1; it bears at its extremity two inclined planes (54) between which is engaged a swivel (55) fixed at the end of a small rod (56) itself integral in rotation with rod 52.

Right: Moody Institute of Science Installation — using Stancil-Hoffman Magnetic Film Recorders.

Below: Model S-5 Magnetic Film Recorder— Rack Mounted.



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"When the control button (46) is raised upward, a movement is started toward the bottom of inclined planes (54) which draws swivel (55) toward the right of the figure; an extorsum rotation is produced in rod (52) and arm (53) draws the photoelectric cell (45) in the direction of arrow F3 which corresponds to the upper part of the image.

"The desired result is thereby obtained: the upward movement of button (46) produces a movement of the photoelectric cell (45) toward the top of the image and inversely. This cell is, of course, connected by conducting wires (58) and (59) to switches (60,

61), which are connected electrically to a galvanometer.

"Window (62) limits the movement of arm (47) in such a way that cell (45) cannot normally go beyond the limits of the image formed on the translucent glass (44); this window however has a notch (63), in which arm (47) may be engaged when there is no wish to use cell (45); this same cell is then engaged in a corresponding notch (64), outside of the field of vision.

"The system of automatic sensitometry described above has recently been tried with success and is on the way to being applied as a regular procedure in movie and television studios in Europe."

MY COUSIN RACHEL

(Continued from Page 59)

platonic behavior toward each other. It had to be implied (but could not, of course, be shown) that from this point on they were engaging in intimacies which (in that day and age, at least) were not bantered about in polite conversation.

To put across this important story point so that no one could be shocked, La Shelle rigged a photographic gimmick. He utilized an optical flat several inches long, left one end clear, and covered the rest of it with progressively heavier swirls of vaseline. As the camera zoomed into close-up of a kiss realistically feverish enough to leave bruises on Miss de Havilland, a camera assistant slid the optical flat before the camera lens from its clear position to its most heavily diffused extreme. The resultant photographic effect puts over the idea in no uncertain terms. In fact, its import could be missed perhaps only by the most naive.

Perhaps the most striking sequence in the film, from the visual standpoint, is that which portrays the delirium of

the male lead as he writhes about in the throes of a serious illness. The effect had to vary back and forth between seeming realism and pure fantasy. Throughout the montage the character lies on his bed in the foreground of the frame, profile to camera. During the flashes of realism, the background of his bedroom was projected on a process screen behind him, and other characters played their action toward him. For the flashes of fantasy, the main character retained his static foreground position, but the sound stage behind him was filled with cross-lighted smoke, creating a white haze out of which ghostly figures seemed to materialize. The two effects were made to blend smoothly into each other by means of optical dissolves.

As part of the same sequence the hero imagines himself being married to the heroine. Clad in her wedding gown, she appears out of seeming nothingness (swirling smoke against a plain gray flat). As she comes up into close-up, the hero (until then crouched down be-

low camera range) rises into the scene to join her, and the camera does a 180° pan with them as the two start down the aisle toward a more-or-less realistic wedding ceremony—but here again use of the diffused optical flat lends just enough unreality to tie the scene into the montage of delirium.

The final sequence of the film takes place in a rock-filled gorge near the seashore, which is spanned by an ancient stone bridge and a makeshift wooden bridge from which Rachel falls to her death. A search of the California coast was made for just such a location. A suitable site was found, but it was decided that the fog, the varying light, and effect of the uneven pounding of waves on the sound track would have made shooting rather difficult there. Instead, the scene was reconstructed on an exterior set at the studio, a long trough or tank known as "the moat," which has been the setting for a great many water scenes in earlier Fox productions. This was filled with rocks and bridged, and completely canvassed over to exclude outside light. Two giant process screens were set up in the background, and upon these were projected scenes of huge waves crashing against the shore. The set was lighted to duplicate a bleak exterior; wind machines were started; slight fog effects were added—and the result is a perfectly controlled visual atmosphere that looks more real than the real thing.

It is not to be implied, however, that tricks and gimmicks are the elements that make the photography of "My Cousin Rachel" an outstanding example of creative lensing. It is rather the overall quality, approach and sure technical skill of La Shelle's visualization that rates honors (Academy or otherwise) for his work on this film. It is not enough to say that his light sources are authentically motivated, because he uses shadow as well as light to create mood and to model his characters strongly.



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Nor does he lack the courage to let actors walk into partial or complete shadow from time to time, for dramatic effect.

His lighting of leading man Burton gives this character great strength and virility, plus a pure animal force that practically leaps off the screen. It can also be said that Miss de Havilland never looked better, or more "ravishing," as the press agents like to say. She radiates sheer, undiluted sex—a quality which must be evident if the audience is to accept some of the seemingly illogical behavior of her leading man.

For several years now, Joseph La Shelle, ASC, has been known as Hollywood's foremost exponent of the moving camera. He shoots with the camera always mounted on a small, highly maneuverable crane, lacing together a dozen or more compositions into one continuous "take" by means of fluid camera movement. This technique was evident in "Laura" (which won him an Academy award), in the magnificently photographed "Hangover Square," and in most of his other outstanding jobs of cinematography in recent years. The fact that camera movement is somewhat less extensively used in "My Cousin Rachel" is explained by him in a general discussion of his own approach to filming.

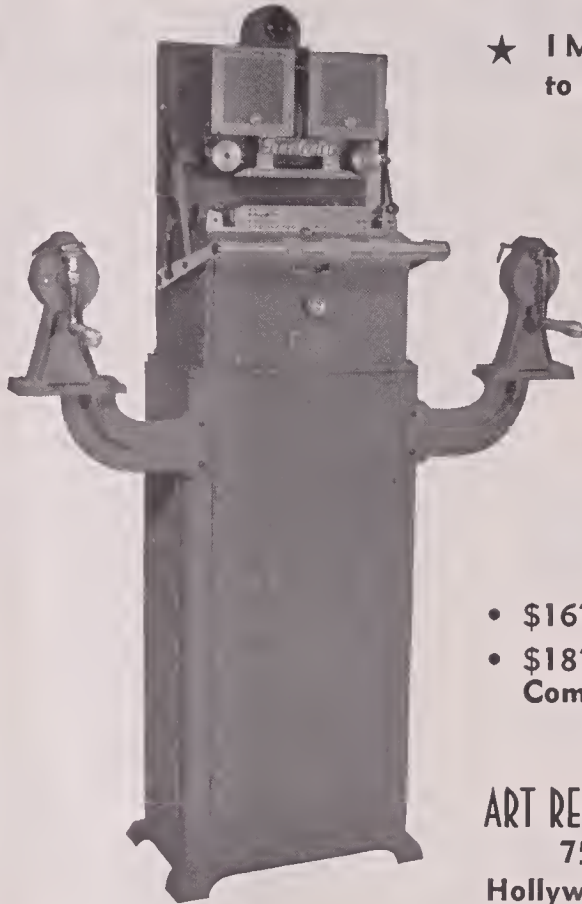
"The function of the motion picture camera is to help tell a dramatic story," he points out. "Because of this, the camera does not exist for its own sake, but is part of the teamwork of production set up to tell that story in the most forceful and effective way. The moment that photography calls attention to itself as a separate craft, it fails in its overall purpose."

He goes on to say: "The director of photography approaches each sequence as a new and separate problem, and he adapts his technique to suit that particular problem. The cinematographer who always uses low angles, or always uses high angles, or always moves the camera no matter what the demands of the sequence, makes the mistake of letting a set style override an individual approach to the problem. He restricts himself to a set pattern of mechanics that may not suit the dramatic situation at all."

"I like to use camera movement when it is called for to follow the action of players, and to tie situations together," he continues, "and this technique is especially effective in a modern action story where the camera adapts its pace to the pace of the dramatic action and thereby helps to keep things moving. However, in my last two pictures, "Les Misérables" and "My Cousin Rachel," I used camera movement more spar-

(Continued on Page 89)

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Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

★ ★ ★ ★

★ ★ ★ ★

Columbia

• WILLIAM BRADFORD, "Saginaw Trail," (Gene Autry Prod.) with Gene Autry, Smiley Burnette, George Archainbaud, director.

• CHARLES LAWTON, "Cruisin' Down The River," (Technicolor) with Dick Haymes, Audrey Totter, Billy Daniels, Bell Sisters, Connie Russell, Cecil Kellaway, Douglas Fowley, and Larry Blake, Richard Quine, director.

Metro-Goldwyn-Mayer

• GEORGE FOLSEY, "The Band Wagon," (Technicolor) with Fred Astair, Cyd Charisse, Vincente Minnelli, director.

• ROBERT SURTEES, "Mogambo," (Technicolor) with Clark Gable, Ava Gardner, Grace Kelly and Douglas Sinden, John Ford, director.

• RAY JUNE, "A Slight Case of Larceny," with Mickey Rooney, Eddie Bracken, Elaine Stewart, and Marilyn Erskine, Don Weis, director.

• JOSEPH RUTTENBERG, "Latin Lovers," (Technicolor) with Lana Turner, Ricardo Montalban, John Lund, Louis Calhern, Jean Hagen, Beulah Bondi, Eduard Franz, Rita Moreno, and The Modernaires, Mervyn LeRoy, director.

• HAL ROSSEN, "Fame and Fortune," with Spencer Tracy, Jean Simmons, Teresa Wright, Tony Perkins, Kay Williams, and Mary Wickes, George Cukor, director.

• GEORGE FOLSEY, "All The Brothers Were Valiant," (Technicolor) with Robert Taylor, Stewart Granger, Elizabeth Taylor, Bette St. John, James Whitmore, Keenan Wynn, and Kurt Kasznar, Richard Thorpe, director.

• WILLIAM MELLOR, "Affairs of Dobie Gillis," with Debbie Reynolds, Bobby Van, Barbara Ruick, and Bob Fosse, Don Weis, director.

Paramount

• LIONEL LINDON, "Here Come The Girls," (Technicolor) with Bob Hope, Tony Martin, Arlene Dahl, Claude Binyon, director.

• RAY RENNAHAN, "Arrowhead," (Technicolor) with Charlton Heston, Jack Palance, Katy Jurado, Michael Keith, Mary Sinclair, Michael Shannon, Judith Ames, and Milburn Stone, Charles Marquis Warren, director.

• DANIEL FAPP, "(Untitled)" with Dean Martin, Jerry Lewis, Donna Reed, Barbara Bates, Don Porter, and Joseph Calleia, Norman Taurog, director.

• LIONEL LINDON, "Sangaree," (Technicolor) with Fernando Lamas, Arlene Dahl, Patricia Medina, Francis O'Sullivan, Charles Korvin, Tom Drake, John Sutton, Willard Parker, and Lester Matthews, Edward Ludwig, director.

Republic

• JOHN L. RUSSELL, JR., "City That Never Sleeps," with Gig Young, Mala Powers, Edward Arnold, Marie Windsor, and Wally Cassell, Producer-director, John H. Auer.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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20th Century-Fox

• HARRY WILD, "Gentlemen Prefer Blondes," (Technicolor) with Jane Russell, Marilyn Monroe, Charles Coburn, Elliott Reid, and George Winslow, Howard Hawks, director.

• CHARLES G. CLARKE, "Fight Town" (Technicolor) with Jeanne Crain, Dale Robertson, Richard Boone, Carol Mathews and Carl Betz, Harmon Jones, director.

• LEON SHAMROY, "White Witch Doctor," (Technicolor) with Susan Hayward, Robert Mitchum, Walter Slezak, Henry Hathaway, director.

• JOSEPH LASHELLE, "Dangerous Crossing," with Jeanne Crain, Casey Adams, and Carl Betz, Joseph M. Newman, director.

Universal-International

• CHARLES BOYLE, "The Stand At Apache River," (Technicolor) with Stephen McNally, Julia Adams, Hugh Marlowe, Hugh O'Brian, Russell Johnson, and Jaclynne Greene, Lee Sholem, director.

• CARL GUTHRIE, "All I Desire," with Barbara Stanwyck, Richard Carlson, Maureen O'Sullivan, Richard Long, Marcia Henderson, Lori Nelson, and Billy Gray, Douglas Sirk, director.

• RUSSELL METTY, "It Happens Every Thursday," with Loretta Young, John Forsyth, and Edgar Buchanan, Joseph Pevney, director.

• WILLIAM DANIELS, "Drifting," with Tony Curtis, Joanne Dru, and Lyle Bettger, Rudolph Mate, director.

• GEORGE ROBINSON, "Abbott & Costello Meet Dr. Jekyll and Mr. Hyde," with Bud Abbott, Lou Costello, Boris Karloff, Craig Stevens, and Helen Westcott, Charles Lamont, director.

Warner Brothers

• EDWIN DUPAR, "The System," with Frank Lovejoy, Robert Arthur, Dan Seymour, and Victor Perrin, Lewis Seiler, director.

• ROBERT BURKS, "The Grace Moore Story," (Technicolor) with Kathryn Grayson, Walter Ahel, Merv Griffin, Ann Doran, and Rosemary DeCamp, Gordon Douglas, director.

• WILFRED CLINE, "Calamity Jane," (Technicolor) with Doris Day, Howard Keel, Allyn McLerie, Dick Wesson, and Philip Carey, David Butler, director.

• ED DUPAR, "The Eddie Cantor Story," (Technicolor) with Keefe Brasselle, Marilyn Erskine, Aline McMahon, Gerald Mohr, Arthur Franz, Will Rogers, Jr., and William Forrest, Alfred E. Green, director.

• TED McCORD, "Sulu Sea," with Burt Lancaster, Virginia Mayo, and Hayden Rork, Arthur Lubin, director.

Independent

• JAMES WONG HOWE, "Main St. To Broadway," (Cinema Prods.) with Tallulah Bankhead, Olivia de Havilland, Faye Emerson, H. Fonda, R. Harrison, M. Martin, Tay Garnett, director.

• HARRY STRADLING, "A Lion Is In The Streets," (Cagney Prod.) (Technicolor) with James Cagney, Barbara Hale, Ann Francis, Lon Chaney, Jr., Frank McHugh, Mickey Simpson, John McIntire, Raoul Walsh, director.

• JOHN SEITZ, "Fort Algiers," (Erco Prod.) with Yvonne De Carlo, and Carlos Thompson, Lesley Selander, director.

• BENJAMIN KLINE, "No Escape," (Matthugh Prod.) with Lew Ayres, Sonny Tufts, Marjorie Steele, Dabbs Greer, Robert Carson, Barbara Morrison, and Rennie McEvoy, Charles Bennett, director.

• ERNEST LASZLO, "The Moon Is Blue," (Preminger-Herbert Prod.) with William Holden, David Niven, Maggie McNamara, Dawn Addams, Tom Tully, and Fortunio Bonanova, Otto Preminger, director.

• STANLEY CORTEZ, "The Neanderthal Man," (Wisberg-Pollexfen Prod.) with Richard Crane, Robert Shane, and Doris Merrick, E. A. Dupont, director.

'MY COUSIN RACHEL'

(Continued from Page 87)

ingly—though not consciously so— for the simple reason that both of these films were period pieces. To have used extensive camera movement would have forced into them an artificially 'modern' pace out of key with the periods and locales."

With Academy Awards time practically upon us again, it is a certainty that one of the leading contenders for the black-and-white cinematography award will be Joseph La Shelle for his masterful lighting and camera treatment of "My Cousin Rachel."

WHAT'S NEW

(Continued from Page 56)

weight, and compactness are important features claimed for the equipment in addition to its prime qualifications of flutter-free motion, wide-range response spectrum, high dynamic range, clean distortion-free sound, and maintenance-free operation.

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Expansion For Kinevox — Kinevox, Inc., 116 So. Hollywood Way, Burbank, manufacturer of the Kinevox portable synchronous magnetic film recorder and associated equipment, has purchased additional ground adjoining its present factory and will erect an addition to its present building to take care of its expanding business.

Company has recently developed several new items of film and TV production equipment, including an automatic film slater, closed-circuit television camera chain with remote control, and a compact portable tape recorder about the size of a small portable radio, for reportorial and interview recording.

Effects, Titles and Miniatures — Ray Mercer & Company, 4241 Normal Ave., Hollywood 29, Calif., announces a stepped-up production program which will enable company to accommodate the increasing needs of independent film producers and makers of TV films for special photographic effects, titles and miniature work. Company currently is supplying most of the major TV film producers in Hollywood with special effects footage and title work.

Company has available an interesting comprehensive chart showing all the

optical effects designs which it makes available, plus containing technical data of value to film makers. Copies are available free by writing the company.

Wirgin Exposure Meter — Camera Specialty Company, 50 West 29th Street, New York 1, N. Y. announces it has started production of the Wirgin exposure meter for still and movie cameras. This meter is probably the smallest extinction type meter ever made—measures barely over one inch long and slightly more than 1/2 inch wide. A folding book-type cover completely closes the meter for storing and against dust. The Wirgin exposure meter gives complete readings in one operation. Diaphragm readings are from F/2.0 to F/32. Speeds are from 1/500 to 8 seconds. The Wirgin exposure meter retails for \$2.25.

BULLETIN BOARD

(Continued from Page 54)

operative cameraman to the regular crew of five on 3-D feature shooting.

The companies owning the 3-D camera equipment, which is leased to producing companies, on the other hand wish to provide their own 3-D technicians to assist in the calculations which they claim is necessary for each shot in 3-D cinematography.

THE ASC LOST THREE members last month through the deaths of Gordon Jennings, Jerome Ash, and Joseph DuBray.

Gordon Jennings, 56, was head of Paramount Pictures special effects department and winner of six Academy Technical Awards. He died January 11 at Lakeside Country Club, Hollywood while playing golf.

Ash, a veteran cinematographer who retired recently after 20 years at Universal-International Studios, died in San Francisco January 5th.

Joseph DuBray passed away recently in France, in a small town near Paris. He retired from active photography in 1947. Until his death he had continued his membership in the ASC as a non-resident member. At one time he was associated with the Bell & Howell Company as Western District Manager.

WINTON HOCH, ASC, last month was signed by Cinerama Productions to a term contract involving his services as a producer, director and cameraman. The company is currently preparing its first Hollywood production using the Cinerama cameras.



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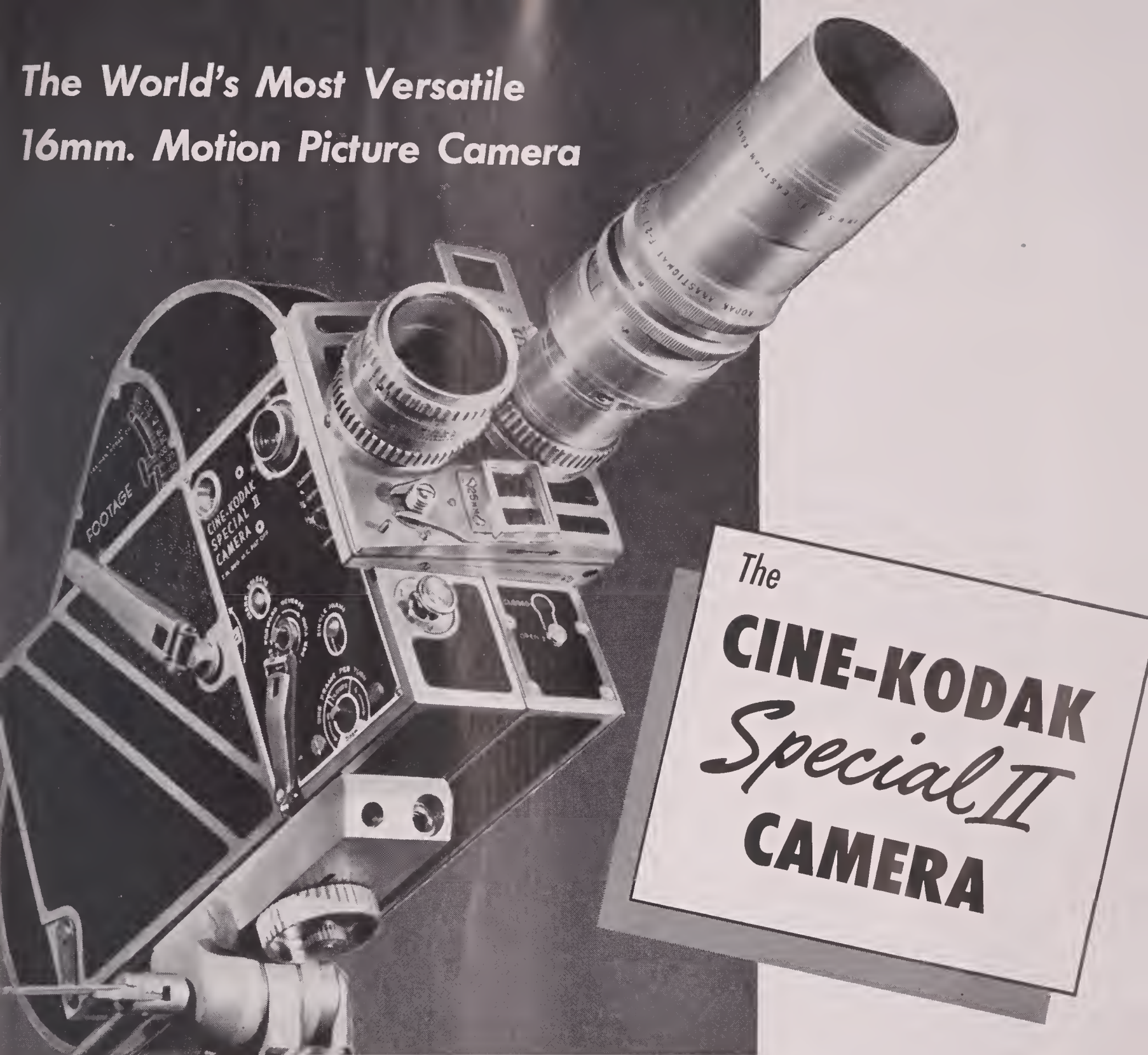
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AMERICAN

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Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

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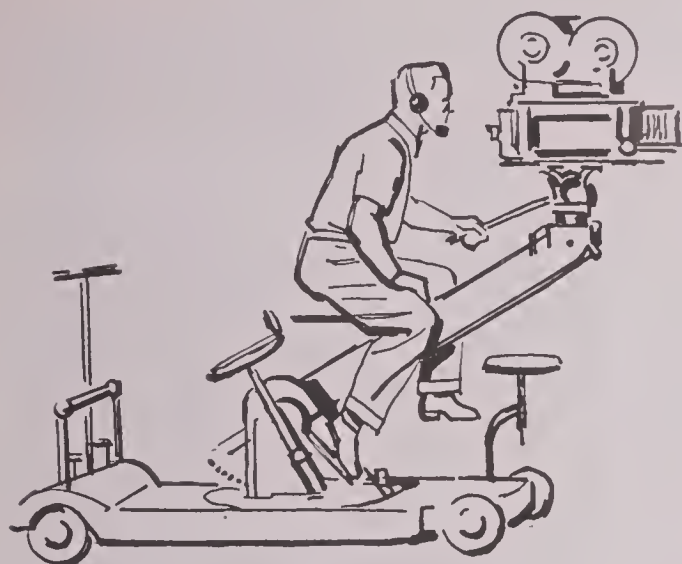
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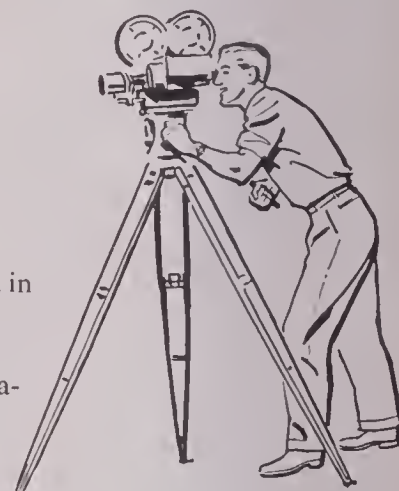
TYPE 914 A—Panchromatic . . . a fine grain 16 mm. film with wide latitude for interior and exterior work. May be reversal-processed with excellent results.

TYPE 930 A—Rapid Reversal Pan . . . a 16 mm. medium speed negative designed especially for high-speed reversal processing. Widely used in daytime newsreel and sports photography.

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For Processing by Reversal

TYPE	Daylight	Incandescent	Daylight	Incandescent
904 B	25	20	—	—
926 B	80	64	—	—
927 B	125	100	—	—
901 A	40	32	64-125	50-100
914 A	32	25	40-64	25-40
930 A	50	40	64-80	50-64
931 A	80	64	125-160	100-125



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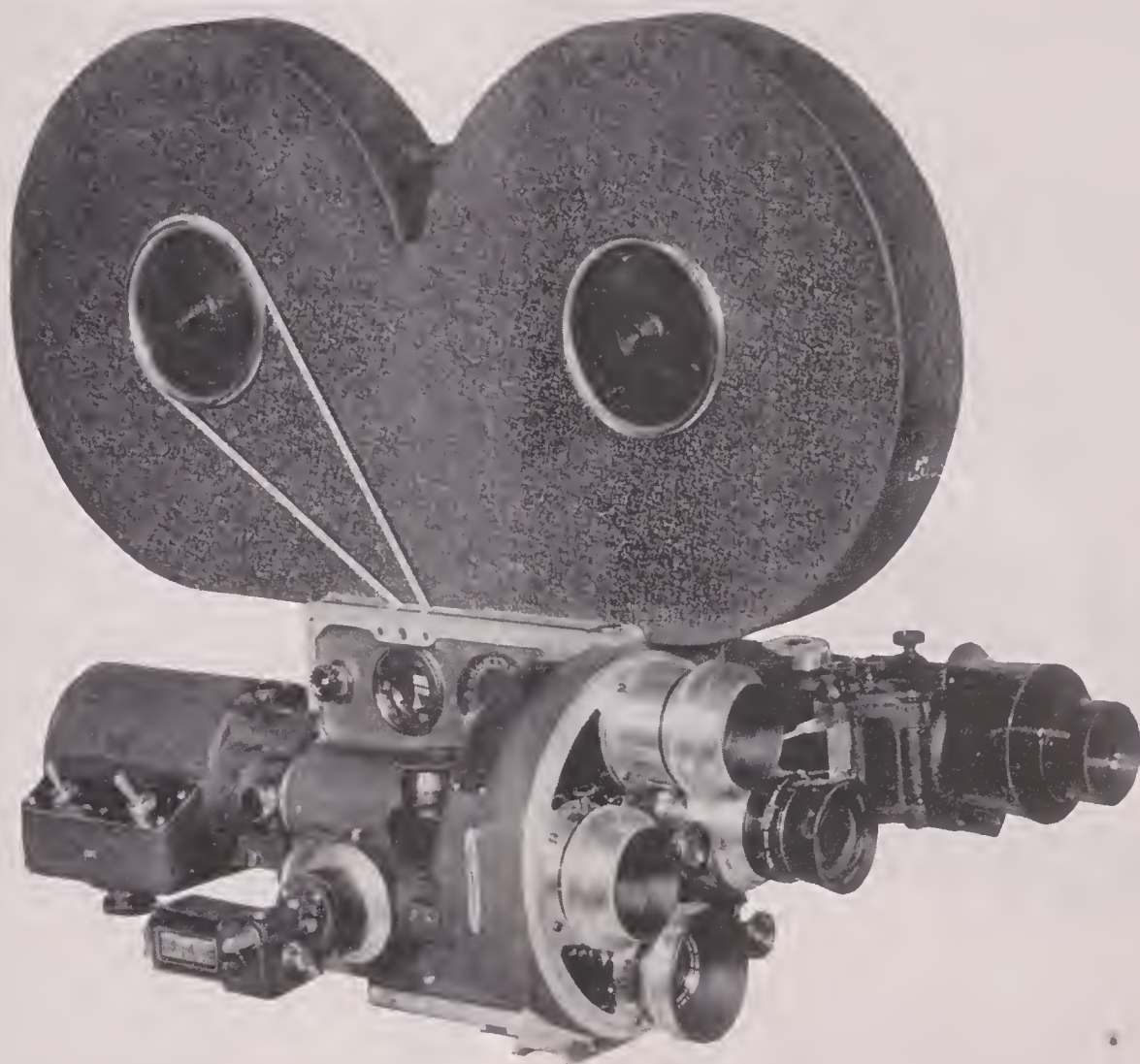
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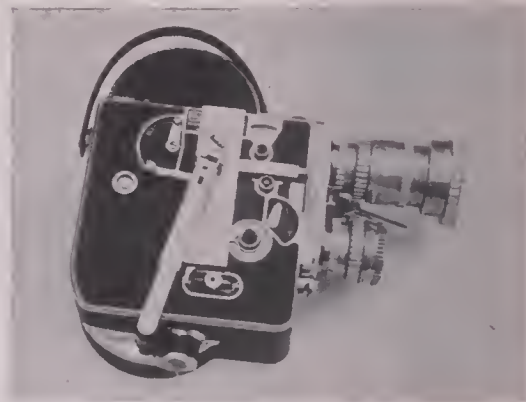
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IN EQUIPMENT, ACCESSORIES, SERVICE

Yolo Dissolve for Bolex — The famous Yolo Automatic Shutter control is now available for Bolex cameras having built-in frame counters and Pellegrini variable shutter. Device insures a perfect dissolve every time, evenly timed both for the fadein and fadeout—for real professional effect. Camera stops automatically at end of fadeout; opens



automatically at start of take. Manufacturer is Joseph Yolo, 5968 Santa Monica Blvd., Hollywood 38, Calif. Unit is also installed complete for \$57.00 by Tullio Pellegrini, 1545 Lombard St., San Francisco, maker of variable shutters for the Bolex H-16.

Stereophonic Sound — Anticipating the trend toward use of stereophonic sound for both 3-Dimension and wide-screen films, Kinevox, Inc., 116 So. Hollywood Way, Burbank, Calif., has developed the Kinevox portable synchronous stereophonic magnetic film recorder. Recording speed is 90 ft. per minute on 17½-mm film. Also available is theatre playback equipment, rack-mounted, in any reel capacity. Conventional Kinevox recorders can also be converted to record stereophonic sound, according to Len Roos, company president.

Please mention *American Cinematographer* when writing for further information.

400-ft. Magazine For Bolex—Toledo Cine Engineering, 1309 Milburn Ave., Toledo 6, Ohio, offer a 400-foot film magazine for the Bolex H-16 camera together with an electric motor drive for those who wish to use this popular camera for professional film production.

The complete conversion consists of a saddle block permanently attached to the Bolex camera; one 400-ft. external magazine with light trap; electric motor (3 types available); set of recessed roll-

(Continued on Page 140)



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PUBLICATION OF AMERICAN SOCIETY OF CINEMATOGRAPHERS

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MARCH • 1953

NO. 3

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ON THE COVER

SHOOTING 3-D MOVIES AT WARNER BROTHERS—Peverell Marley, ASC, (left, seated) directed the photography of "House of Wax," Warner Brothers' initial stereo feature, which was photographed last month in Warnercolor with a Natural-Vision 3-D camera. Although it's hard to distinguish the wax figures from real persons on the set, girl wearing hat is Phyllis Kirk. Directing the scene is Andre de Toth, third from left.

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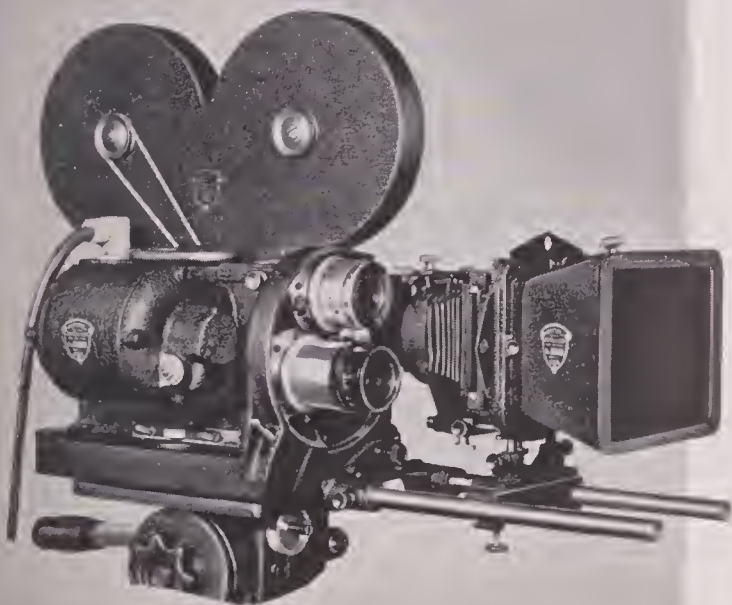


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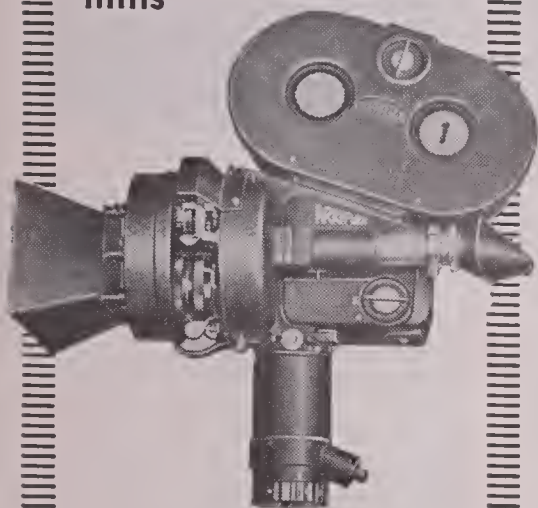
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Hollywood Bulletin Board



WHEN BENNIE PINGA, official of Philippine Society of Cinematographers visited the ASC last month, Fred Jackman (l), ASC veepee, and Clyde DeVinna (r) presented him with important technical magazines and papers for PSC's new technical library.

JOHN BOYLE, ASC, drew assignment to shoot the second episode of Sol Lesser's "3-D Follies." Production is being filmed in color with Sterco-Cine Corp's 3-dimension camera.

KARL STRUSS, ASC, has been elected chairman of the Stereo Division of the PSA, which is holding its 1953 annual convention in Los Angeles in August.

DON MALKAMES, ASC, east coast cinematographer who photographs the "Man Against Crime" series of TV films in New York, was a Hollywood visitor last month.

KARL FREUND, ASC, who shares credit with Desilu Productions for winning an Emmy Award for Best Comedy Show on Television, was presented a certificate commemorating his contribution to show as director of photography.

JACKSON J. ROSE, ASC, is readying a new edition of his "American Cinematographer Handbook." New eighth edition should be off the press next month.

ARCHIE STOUT, ASC, will share dual "Oscar" awards with Winton Hoch, ASC, in event "The Quiet Man" is voted best in color photography class this

month by Academy of Motion Picture Arts and Sciences. Hoch, who directed the Technicolor photography of the picture, has petitioned the Academy to recognize Stout's contribution to the production as director of 2nd unit photography.

WILTON HOLM, ASC, formerly with Cincolor, is now a representative of DuPont on the east coast.

NATIONAL MAGAZINES featured the work of the industry's leading directors of photography in text and pictures last month. Phil Tammura, ASC, and his camera crew were publicized in a feature story in the *Saturday Evening Post*, while more than sixteen ASC members were pictured in a feature story in the March issue of *Photography*.

LOYAL GRIGGS, ASC, and Irmin Roberts, ASC, are in India on a photographic assignment for Paramount Studio.

FREDERICK A. YOUNG, ASC, British cinematographer, completed the photography of "Mogambo" last month. The Technicolor production, starring Clark Gable and Ava Gardner, was produced by MGM at its London studio and on location in Africa.

(Continued on Page 139)

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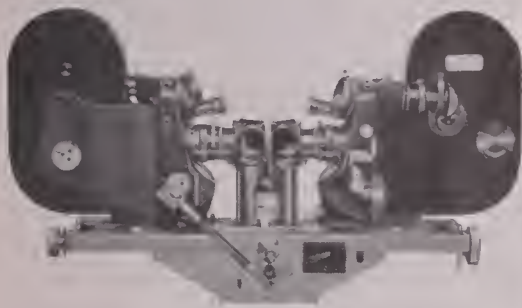
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1952-53 Cinematography Awards

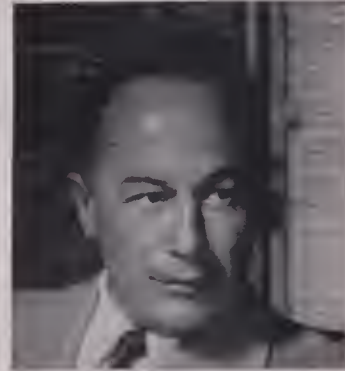
Non-industry award-sponsors cite Crosby, Barnes, Marley and Hoch for outstanding photography.



FLOYD CROSBY, ASC
"High Noon"



GEORGE BARNES, ASC
"Greatest Show"



PEV MARLEY, ASC
"Greatest Show"

FOUR DIRECTORS OF PHOTOGRAPHY, all members of the A.S.C., were cited last month for achievement in photography. The Hollywood Foreign Correspondents Association presented its Golden Globe Awards to Floyd Crosby, ASC, for best black-and-white photography of Stanley Kramer's "High Noon," and to George Barnes, ASC, and J. Peverell Marley, ASC, for the Technicolor photography of Cecil B. DeMille's "The Greatest Show On Earth," cited for "best color photography."

Look magazine, in its annual presentation of awards for achievement in the motion picture industry, honored Winton Hoch, ASC, for the Technicolor photography of Argosy Productions' "The Quiet Man."



WINTON HOCH, ASC
"The Quiet Man"

several non-industry sponsors single out stars, producers and technical personnel of the Hollywood motion picture studios for outstanding achievement during the preceding year.

Of these awards, perhaps the Golden Globe and the Look awards are the most important to the industry's directors of photography, second in importance only to the Academy's "Oscars."

For Crosby, Barnes and Marley, it is

their first Golden Globe Awards. Frank Planer, ASC, noticeably missing from the Golden Globe roster this year, has won three Globes in a row.

Winton Hoch's Look award is his first. "The Quiet Man," for which he won the award, is also nominated in the color photography class for an Academy Award.

In presenting its 12th annual Achievement Awards, Look magazine cited 18 films as "best Pictures of the year." Contributing to the success of these 18 films was the photography. In the light of this, the respective directors of photography deserve mention here.

The 18 productions honored as "best pictures" by Look are listed below, with the name of the cinematographer credited first:

Irving Glassberg, ASC, "Bend In The River" (U-I); James Wong Howe, ASC, "Come Back Little Sheba" (Par.); Otto Heller, "The Crimson Pirate" (WB); George Barnes, ASC, Pev Marley, ASC, "Greatest Show On Earth" (Par.); Harry Stradling, ASC, "Hans Christian Andersen" (Goldwyn); Charles Lawton, ASC, "The Happy Time" (Kramer-Col.); Floyd Crosby, ASC, "High Noon" (Kramer); Freddie Young, ASC, "Ivanhoe" (MGM); Karl Struss, ASC, "Limelight" (Chaplin); Joseph Walker, ASC, "The Marrying Kind" (Col.); Ossy Morris, "Moulin Rouge" (Romulus); Jos. LaShelle, ASC, "My Cousin Rachel" (Fox); Winton Hoch, ASC, "The Quiet Man" (Argosy); Hal Rosson, ASC, "Singin' In The Rain" (MGM); Leon Shamroy, ASC, "Snows of Kilimanjaro" (Fox); Charles Lang, ASC, "Sudden Fear" (RKO); and Leon Shamroy, ASC, "With A Song In My Heart" (Fox).

END

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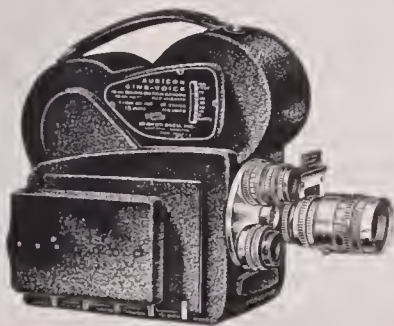
NOTE: "Cine-Voice" Camera is being operated from 6 volt "Jeep" battery, using Auricon PS-14 Power Converter.



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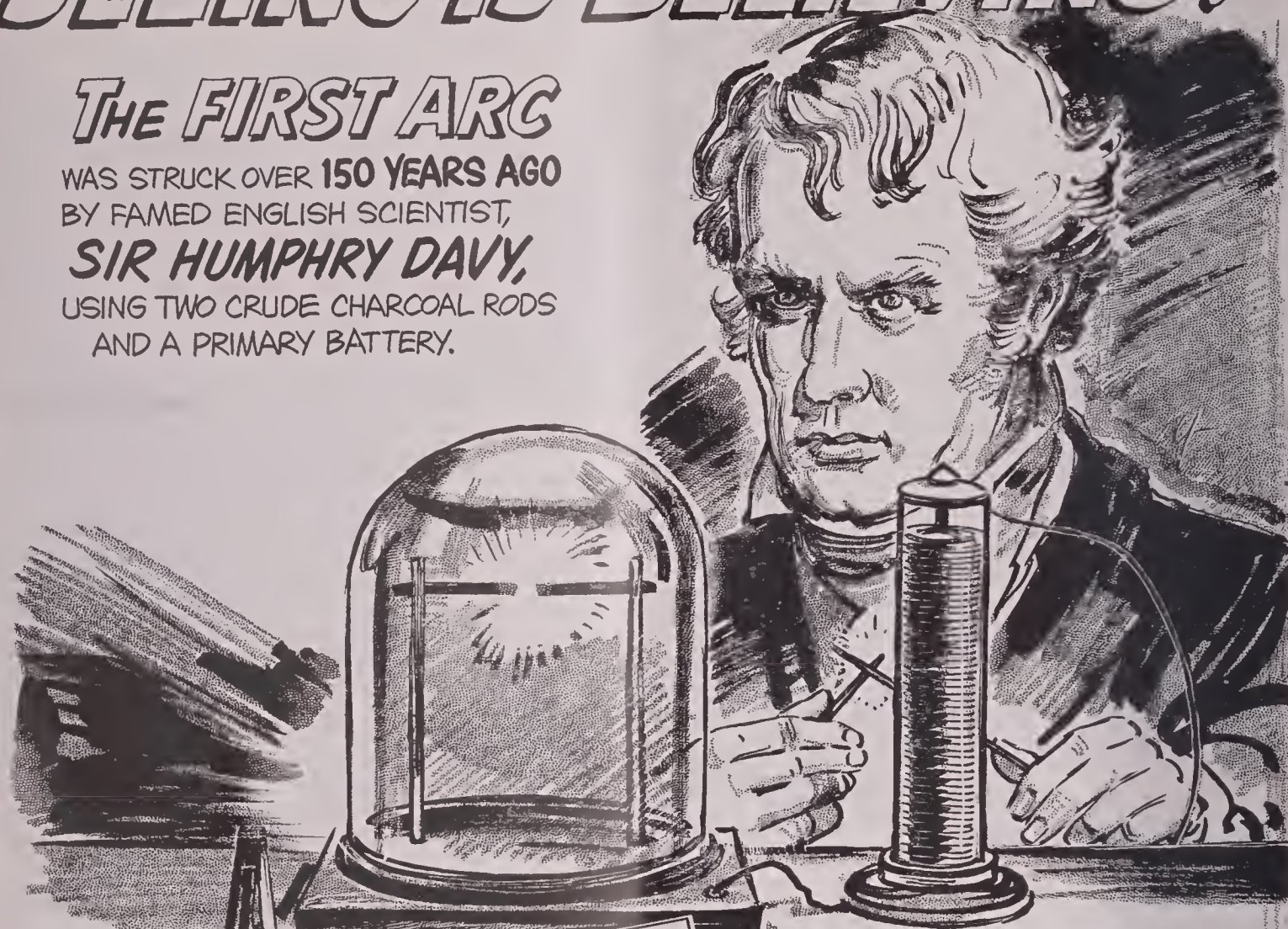


MANUFACTURERS OF SOUND-ON-FILM RECORDING EQUIPMENT SINCE 1931

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THE FIRST ARC

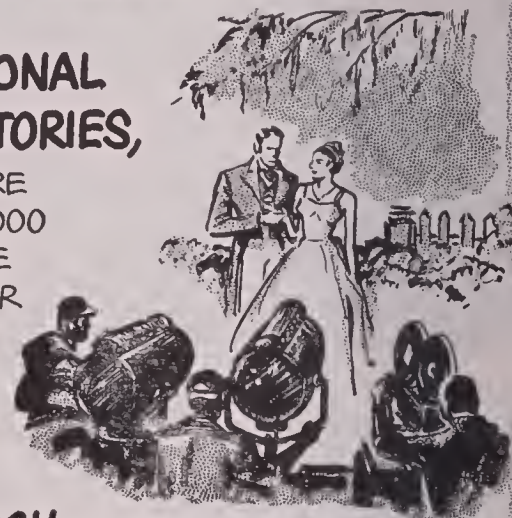
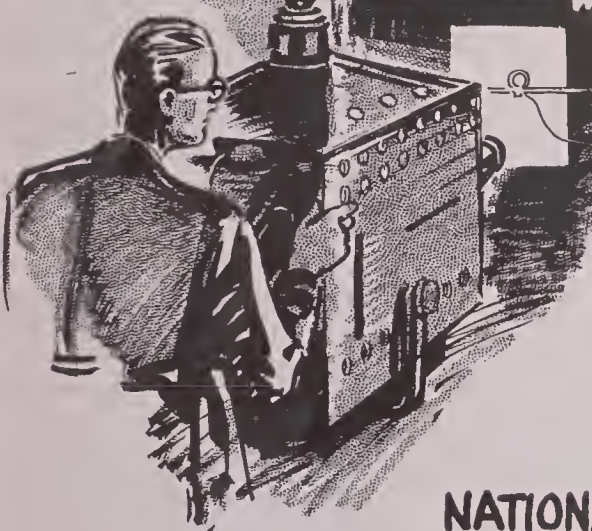
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Practical Filming Techniques For Three-dimension And Wide-screen Motion Pictures

By CHARLES G. CLARKE, A.S.C.

President, American Society of Cinematographers

ALTHOUGH VARIOUS METHODS for wide screen and three-dimensional motion pictures have been tried out on an experimental basis since the inception of the cinema, no concerted effort has been attempted by the industry to introduce this advancement for general exhibition until now. As progress from



Chas. G. Clarke

black-and-white to color photography followed a slow process of development, the next step towards reality on the screen — pictures with natural depth — has likewise long been delayed. This has been partly due to a reluctance to attempt something new so long as the old was acceptable, and partly because of the radical adjustments necessary on the part of the spectator as well as the producer to make these new techniques possible.

It is unnecessary here to go into the theory of binocular vision and depth perception. We all know that every person having normal vision sees depth because each eye sees a scene from a slightly different angle than the other. This angle however is all important. With the average person the eye separation or interocular distance is $2\frac{1}{2}$ inches or about 64 millimeters. For natural reproduction by photographic means it is therefore imperative that the lenses of 3-D cameras making the left and right hand pictures be spaced no more or less than this normal separation. Any violation of this rule of nature will result in false perspective and unnatural results on the screen.

True, in certain special effects, the interocular separation will have to be varied; but for normal scenes the camera lenses should be properly spaced. Unfortunately, there have been camera installations which have violated this rule. The 1000-foot film magazine has forced the cameras apart when they have been set up to face each other with reflecting mirrors between them. When used in this way with wide angle lenses, elongation of the subjects and over-drawn depth perspective result. The cameras must be accurately mounted so that each one records an identical image

as to size, alignment and synchronization of picture to the other.

As the human eyes constantly "toe in" or converge as they look at various objects in different planes of depth, so must the cameras be equipped to converge on the principal object of interest. Presuming that the cameras to be used fulfill these basic requirements, what are some of the practical filming techniques that must be observed? As literature on this subject is almost non-existent, perhaps the observations of some years of my experience in this field will be of assistance.

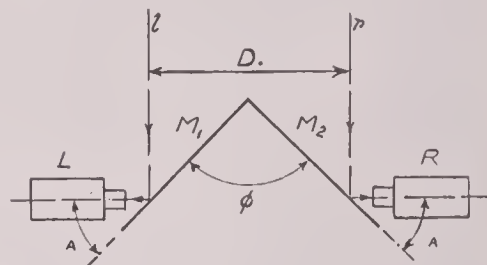
While there are no great mysteries connected with three-dimension photography, basic rules do apply, and to a certain extent we must learn to undo some of the things we have been doing in flat photography all these years in an attempt to simulate third dimension. In the past we have been using very wide angle lenses, backlighting, and silhouette foreground objects to give the illusion of depth to planar pictures. We have been forcing and even over-drawing perspective with the 25mm lens. Common sense therefore dictates that with true three-dimension filming these illusions are not only unnecessary but can be detrimental. Except for special effects, the normal long shot in 3-D is best reproduced by no shorter focal length lens than the 40mm. The 50mm is ideal for medium shots and the three-inch lens is excellent for closeups.

For long shots some tolerance is allowable in excess interocular spacing, but for closeups, even with the three-inch lens, the lens spacing must not exceed $2\frac{1}{2}$ inches for natural reproduction.

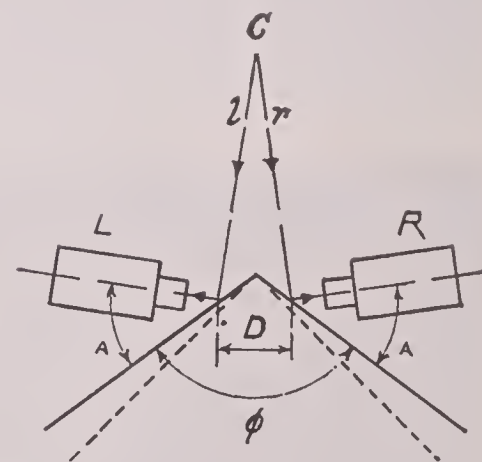
Some readers may recall that in the very early days of film making it was a hard and fast rule that the feet of the actor must always be shown. Audiences had to see what the characters were standing on! This seems ridiculous now that we are educated to seeing closeups with no visible means of support; but it took many years to get audiences adjusted to this technique of the cinema. Likewise, it will take some time before audiences will accept persons or objects standing out in front of the screen in 3-D films, where in reality they belong. In time this will come about of course, but for the present it is probably better

not to include objects too close to the foreground or ahead of convergence. Branches of trees, foreground lamps and such had best be left out or moved back into the scene for the time being. Likewise spectators are not yet accustomed to seeing objects out over the audience, so the projectors will be converged from infinity or "toed-in" to a middle foreground in order to push back the actors to the plane of the screen. Distant objects behind them will therefore appear "through the window" or in back of the screen. For this reason the screen becomes a window frame, and the composition of the scenes must be arranged so that the actors are completely within

(Continued on Page 128)



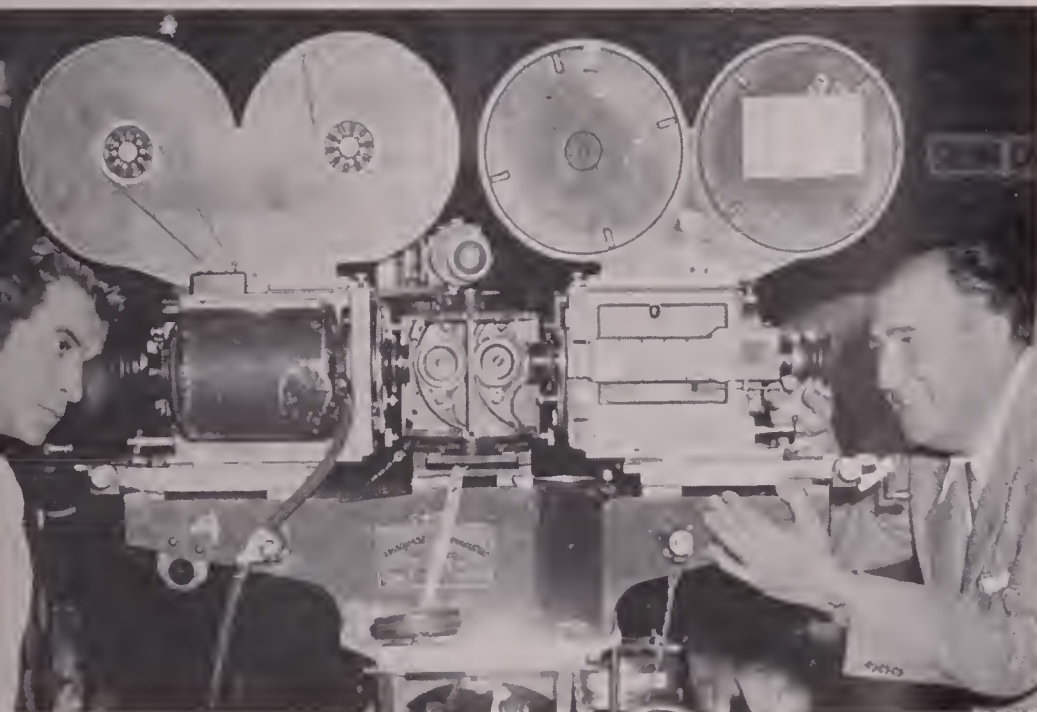
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2

ABOVE DIAGRAMS show method of setting stereoscopic apparatus of a typical 3-D motion picture camera for two types of shots: (1) distant, and (2) closeup. For sake of clarity, the various elements have not been held to proportionate size. M1 and M2 are the adjustable angular front-surfaced mirrors which reflect scene or image into lenses of the cameras L and R. D is the stereoscopic base dimension—variable for each type shot. To vary the lens interaxial, the cameras are moved laterally toward or away from the mirrors. Changing angle of mirrors, as in (2), alters the convergence, and in this method the cameras may also be pivoted so that the angles A between cameras and mirrors are always retained at 45° . Ideal screen results in 3-D depends primarily on the proper setting of the interaxial distance (also called the interocular), the convergence, and correct focus.

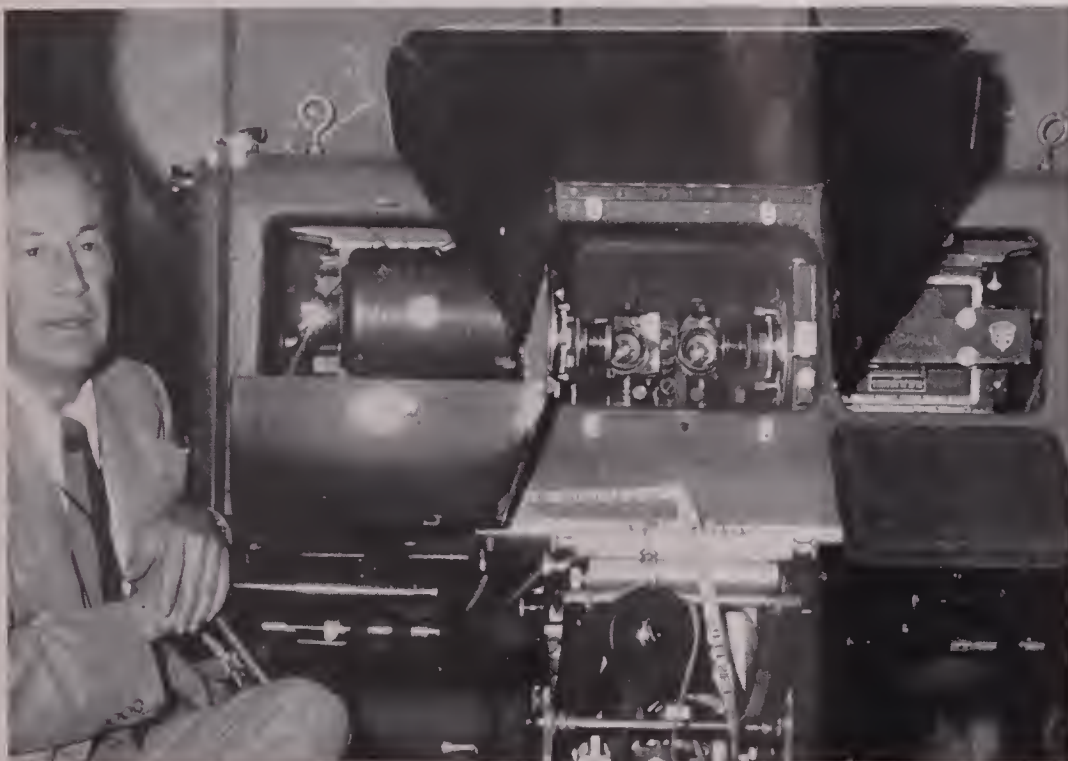
All Hollywood Studi



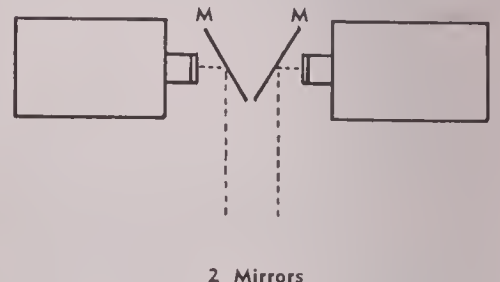
PARAMOUNT—This studio's 3-D camera is conventional type with two Mitchell 35mm cameras mounted in opposed position. Lenses record image reflected on two 45° mirrors, as shown above. An improved camera providing narrower interocular is being developed. Peering through finders are actor Fernando Lamas (L) and director Edward Ludwig.



COLUMBIA—While studio engineers are perfecting their own 3-D camera, studio's initial 3-D feature, "Fort Ti," is being filmed with a Natural-Vision 3-D camera, under direction of Lester White, ASC.



WARNER BROTHERS—This studio's initial 3-D film "House of Wax," is being shot with Natural-Vision cameras by Pev. Marley, ASC. Meanwhile, studio engineers are progressing with Warner's own 3-D camera, soon to go to action. Natural-Vision's rig comprises two Mitchell cameras mounted in opposed position, has variable twin mirrors.



2 Mirrors

DIAGRAMS SHOW the three prevailing systems for 3-D motion picture cameras, now in general use in Hollywood: (1) two cameras mounted opposite each other, each recording image from two variable mirrors (2) two cameras mounted at right angles, with one recording image reflected in mirror and other recording scene direct; and (3) twin camera

Shooting 3-D Films

S.C. Survey shows all majors in quickening to stereo production. Most of them have developed their own 3-D cameras; are training cameramen to photograph feature films in the new stereo medium.

By ARTHUR GAVIN

cameras on February 27th, with Floyd Crosby, ASC, directing the photography. A third stereo production, "Renegade Canyon," gets under way on March 10th.

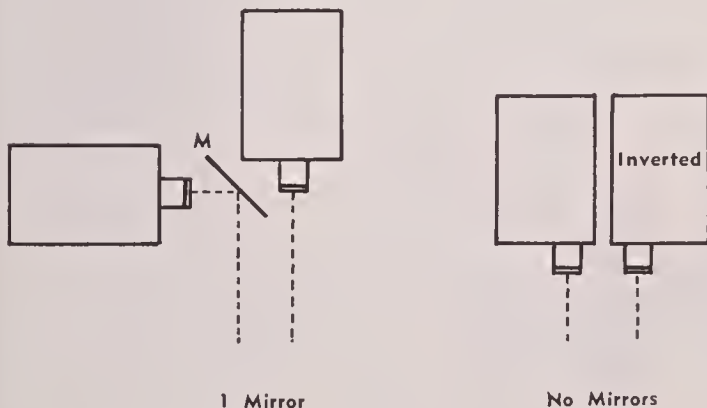
Meantime, the studio is engineering its own 3-D camera equipment under the guidance of Gerald Rackett, company vice-president and technical head. Details of the equipment so far is a closely guarded secret.

The Natural-Vision 3-D camera, which was described at length in *American Cinematographer* for August, 1952, ("Hollywood Launches 3-D Film Production," page 336) comprises two Mitchell 35mm cameras mounted on a stereo base having precision adjustments for parallax, convergence, etc. The equipment is completely blimped. A feature not yet incorporated successfully in cameras developed by some of the studios. It is extremely flexible, affording accurate alignment of each camera through individual finders, in addition to the central finder positioned just behind the adjustable reflecting mirrors.

Metro-Goldwyn-Mayer—This studio engineered its own 3-D camera, utilizing two Mitchell 35mm cameras mounted at right angles, (See accompanying photo.) and

(Continued on Next Page)

RKO has acquired use of the Norling 3-D camera, said to be the ideal stereo camera in that it was constructed especially for 3-D, has many unusual features. Studio began production on its initial 3-D feature with this camera, shooting footage of New Orleans Mardi Gras, under direction of the inventor, J. A. Norling.



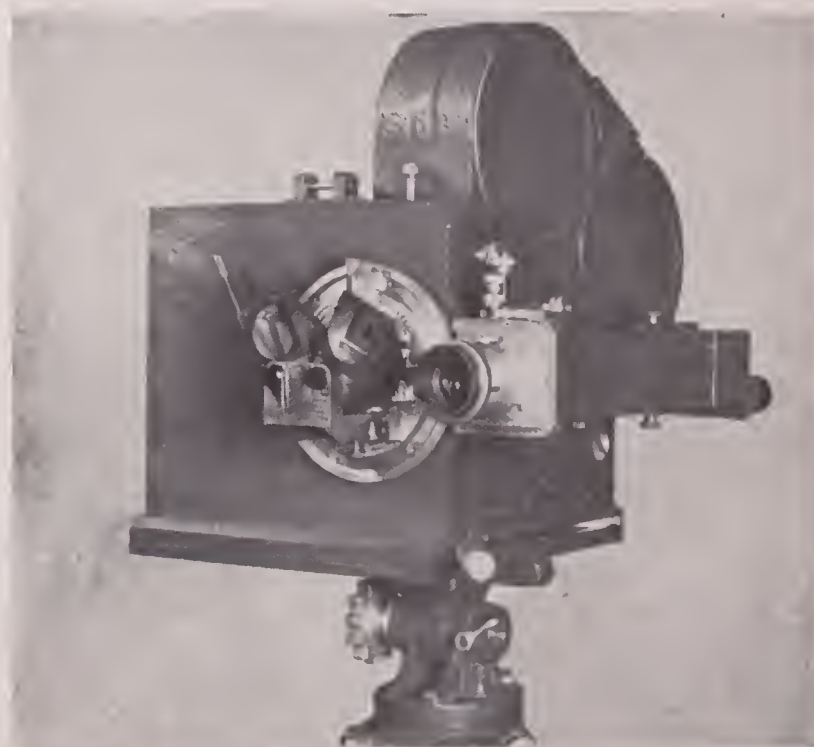
mounted side by side, with one camera inverted to permit closest possible interocular distance (distance between lenses.) This system requires no mirrors. Convergence, parallax, and variable interocular adjustments are provided through various systems of adjusting mirrors, angle of cameras, etc.



STEREOCINE'S 3-D camera comprises 2 Camerettes mounted opposed, shooting through mirrors. Sol Lesser used this camera for his initial 3-D film. Pictured (L to R) are developers of camera: R. G. Wolff, head of StereoCine Corp., and Henry Ludwin and A. S. Bodrero.



MGM's 3-D camera design follows radical departure in that two Mitchell 35's are mounted at right angles. Only one mirror is used. Because of several innovations, extreme closeups in perfect rendition are claimed for the camera, which is being inspected here by MGM executive, Arthur Loew, Jr.





REAR VIEW of the Norling 3-D camera pictured on preceding page. An important feature is the binocular viewfinder which permits lining up both camera lenses while viewing scene in three-dimension. Lever extending from base effects quick rack-over.

began its first 3-D production. "Arena" in Ansco Color the first week in February with Paul Vogel, ASC, directing the photography. Other 3-D productions are in the process of being scheduled, but the studio is moving cautiously in view of its plan also to go into the CinemaScope system of wide-screen film making, developed by 20th Century-Fox.

MGM's system is tentatively tradenamed the "Tri-Dee" process. Its stereo camera is the development of John Arnold, ASC, studio's executive director of photography, and is said to incorporate a number of exclusive features patented by Arnold. Despite this, and unlike other studios, MGM disdained any pretense of secrecy in its developments, was one of the first studios to have its own 3-D camera in use on a feature production. Meantime, company is building eight additional 3-D camera units, including two for its London studios—indicating that MGM is planning a substantial schedule of 3-D productions in the future.

One of the important features claimed for MGM's stereo camera is its ability to make super-closeups without any distortion. One camera shoots the scene directly, while the second, set at right angle, picks up the scene reflected by a variable 45° mirror. The negative from this camera must be reversed in the printing. According to Arnold, mounting the cameras at right angles permits an interocular adjustment smaller than the conventional or "basic" 2½ inches, which accounts for the camera's ability to record undistorted "tight" closeups as well as precisely parallaxed and converged medium and long shots.

Paramount—This studio was the first major to get into 3-D film production following the general swing to the new medium. Studio had developed a stereo camera years before, took it out of storage and started shooting "Sangaree," early in February, using Eastman Type B color negative, with Lionel Lindon, ASC, directing the photography. Paramount's system, which is tradenamed Paravision, comprises two Mitchell 35mm cameras mounted in opposed position on a stereo base having micrometer adjustments for variable interocular and convergence. Both cameras carry standard 1000-ft. film magazines. The viewfinder is mounted just above the variable mirrors. Reports are that studio engineers are presently constructing a new model camera which will mount the film magazines at an angle in order to permit closer

positioning of lenses for narrower interocular spacing, so essential for closeups.

Paramount also leads all other major studios in number of 3-D pictures in the planning stage—five features in all at this writing.

RKO-Radio—Early last month, RKO acquired the original Norling 3-D camera, considered by many the ideal stereo camera, inasmuch as it was engineered especially for stereoscopic motion pictures, and was not "built up" from conventional 35mm cameras. Designed and built by J. A. Norling, of Loucks & Norling, New York, the camera incorporates many unique features, not the least of which is the prism arrangement for providing the variable interocular and divergence necessary for 3-D filming. Camera uses two films, fed from twin magazines, and has a binocular viewfinder which enables operator to see the scene in 3-dimension when the camera is racked-over to viewing position.

While studio has not yet begun production of a feature in 3-D, it sent its camera and crew, supervised by Mr. Norling, to New Orleans, Louisiana, to record scenes of the annual Mardi Gras for use in a forthcoming stereo feature.

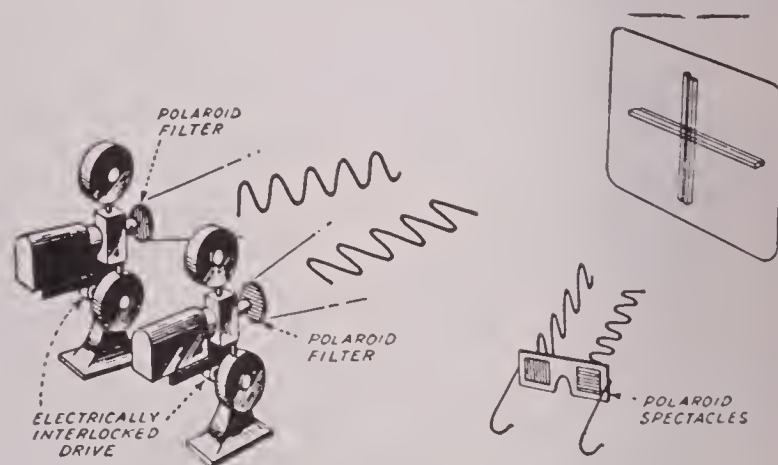
Meantime, company reportedly is looking over 3-D cameras of other studios and of independents, with object of acquiring several for use in future RKO 3-D productions.

20th Century-Fox—Although this studio's major activity reportedly is concentrated in its CinemaScope wide-screen process, it also is entering 3-D film production. Sol Halprin, studio's executive director of photography, has developed a 3-D camera, details of which thus far have been kept under cover. Process is tradenamed Stereoscopic. Initial 3-D feature, "Inferno," in color, is being photographed by Lucien Ballard, ASC. Other features in 3-D are in the planning stage.

Universal-International—This studio has been the most secretive of all regarding its special 3-D camera as well as company's initial 3-D production, "It Came From Outer Space," being photographed in black-and-white by Cliff Stine, ASC. The stereo camera developed by studio engineers reportedly employs two Mitchell cameras mounted side by side, with one camera inverted to provide close setting of lenses in order to gain a minimum interocular distance. The camera is said to employ no mirrors, has selsyn motor control of focus, and boasts the advantage of providing a negative that makes possible daily prints with a minimum of delay. It is further reported that two different 3-D cameras are employed on the set—one for medium and long shots, the other for closeups.

Warner Brothers—This studio is employing one of the Natural Vision 3-D cameras in photographing its initial stereo feature, "House of Wax," being filmed in Warner-Color by

(Continued on Page 134)



VISUALIZATION of the 3-D viewing system conventional for films shot with twin stereo cameras. Left and right images are projected through Polaroid filters onto a metallic screen, which is essential for exhibition of Polaroid 3-D pictures. Spectators must wear special Polaroid viewing glasses in order to observe the stereoscopic illusion on the screen.

EASTMAN

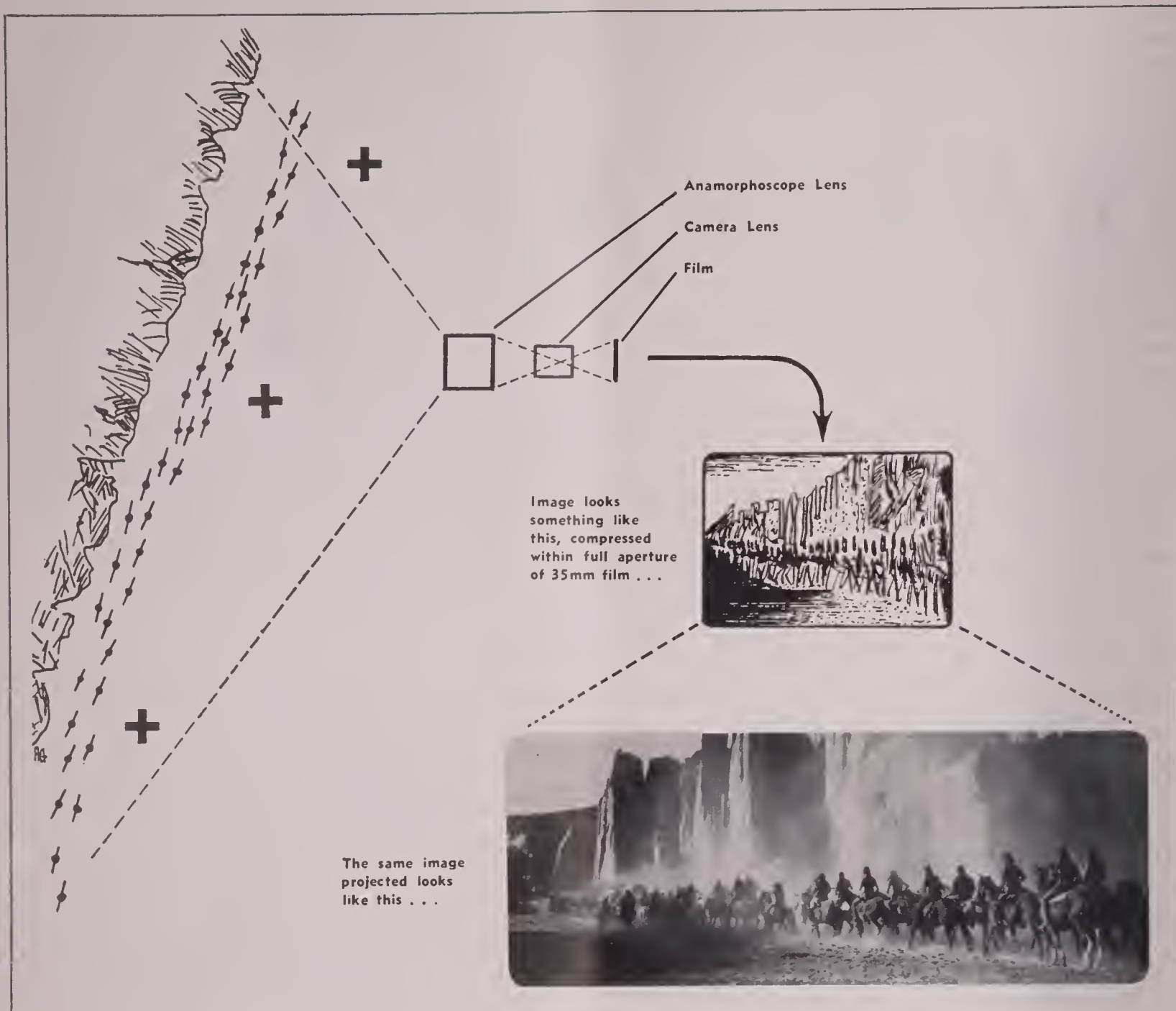
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HOW CINEMASCOPE WORKS—Panoramic scene of marching Indians at left is photographed with an anamorphoscope wide-view lens in front of camera lens. This compresses image within the full aperture of 35mm film. In projection, another anamorphoscope placed before projector lens

expands compressed image to full scale so it appears on screen as shown above, lower right. Three microphones (X) placed strategically to cover the full range of the set or scene record three separate tracks to provide stereophonic sound, an important factor in CinemaScope system.

CinemaScope--What It Is; How It Works

The only added equipment needed in CinemaScope filming is the special lens attached to a regulation camera plus two extra microphones, which pick up sound for the stereophonic sound system.

A UNIQUE LENS which restores to its proper proportions an image previously distorted, makes possible the compression onto 35mm film of wide-angle panoramic scenes, and is the basis of the new CinemaScope system of wide-screen motion pictures developed in

Hollywood by 20th Century-Fox studios.

When the film is projected through a companion lens the distorted image assumes its former normal dimension, just as a trick mirror in a carnival fun house would straighten out its distorted reflections if placed before a mirror

having compensating distortions.

CinemaScope is *not* stereoscopic movies—not the same as the 3-D films also causing a flurry in Hollywood. CinemaScope films do not require the use of viewing spectacles, do not require special dual motion picture cameras and dual projectors. But the result on the screen, which does present an *illusion* of three-dimension pictures, is said by many to be superior to 3-D films.

Like the Cinerama process, CinemaScope pictures are panoramic and have stereophonic sound. The wide screen

used for CinemaScope is a solid screen having great reflectance, and is curved slightly but not to the extent of the Cinerama screen.

CinemaScope is a simple, inexpensive process applicable to either color or black-and-white films, which simulates three-dimension to the extent that objects and actors seem to be part of the audience, while its stereophonic sound imparts additional life-like quality as it moves with the actors across the screen.

From its panoramic screen, two and a half times as large as ordinary screens, actors seem to walk into the audience, ships appear to sail into the first rows, off-screen actors sound as though they are speaking from the wings.

CinemaScope is a simplified improvement of an anamorphoscope lens (which he called a Hypergonar) developed by Frenchman Henri Chretien with whom 20th Century-Fox recently closed arrangements for its use and other patented improvements.

(Ed. Note: Webster's dictionary defines anamorphoscope as: "A cylindrical mirror or lens which restores to its normal proportions an image distorted by anamorphosis.")

The anamorphoscope is fitted before the regular camera lens and functions to gather up a wide field of view and funnel it, compressed, through the camera lens, leaving a distorted image of the scene on the film. In projection, a similar anamorphoscope placed before the projector lens unscrambles the image so that it reaches the screen exactly as filmed and completely without distortion.

In describing the Hypergonar anamorphoscope lens, Chretien said: "The Hypergonars which we have built are of two types: for photography, and for



HOW CLOSEUPS WILL BE COMPOSED in CinemaScope wide-screen photography. Tight closeups will probably be avoided in favor of head-and-shoulders composition, with the figure or figures placed a little to the left or right of center of the frame, as in this sketch of a scene for "The Robe," 20th-Century-Fox's first CinemaScope production.

projection. They differ only in their dimensions and their mountings."

From the optical point of view, they consist of two separately achromatized systems: a converging system consisting of two lenses, cemented together, and a diverging system consisting of three lenses, cemented together.

In photography, focusing of the anamorphoscope is accomplished in accordance with the distance of the subject, by means of a spiral-shaped shaft and the help of a distance calibration. This does not alter in the least bit focusing of the camera lens.

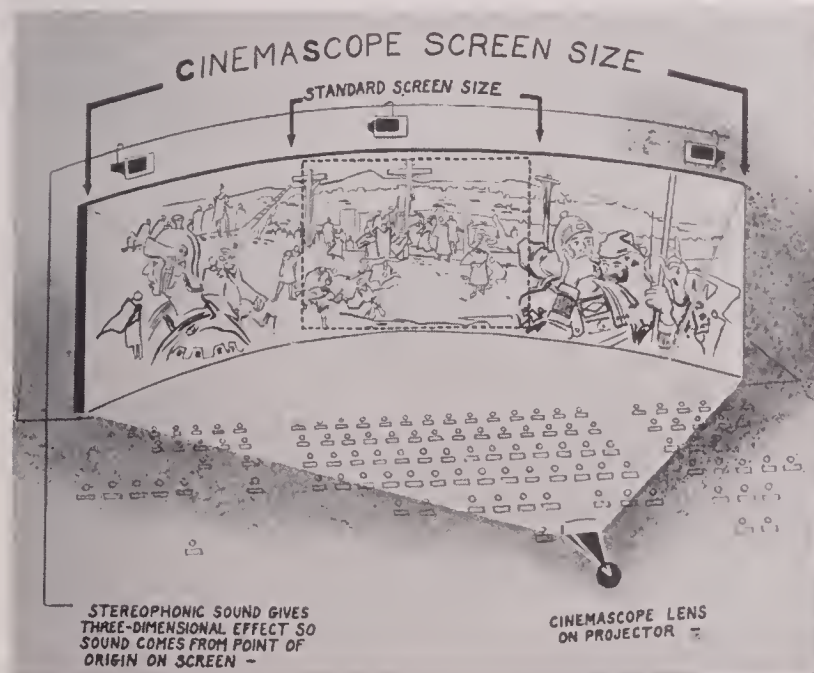
In projection, Chretien explains, the Hypergonar is adjusted once and for all in accordance with the distance of the screen, by means of a helical rack and pinion. The interposition of the Hypergonar does not modify the definition on the screen.

The loss of light occasioned by the introduction of the anamorphic attachments is insignificant, the inventor points out, because the consecutive inter-

position of only two supplementary lenses, i.e., the two Hypergonar units, consists of cemented lenses. In addition, the exterior surfaces of the elements in each system are treated with anti-reflection coating. In projection, the screen brightness is reduced proportionately to the enlargement of the anamorphic attachment, since there is a larger screen area to light, and not in proportion to its square (as would be the case where the image were enlarged in all directions).

CinemaScope requires only one camera for filming and one machine for projection on the screen. It utilizes the same cameras and projectors now standard in all studios. And because the anamorphoscope lenses can be adapted to all makes of 35mm cameras, 20th Century-Fox expects to make the CinemaScope system available to all motion picture studios.

CinemaScope poses few problems for the director of photography. Use of the
(Continued on Page 131)



PROJECTION OF CINEMASCOPE movies requires but one projector. Screen is curved slightly and fills entire stage proscenium. Three speakers—one in center and one at either side of screen (i.e., behind it) reproduce the stereophonic sound track, lending added naturalness and dimension to CinemaScope movies.



ONE OF THOSE most instrumental in the perfection of Twentieth Century-Fox's CinemaScope process is Sol Halprin, ASC (center) studio's executive director of photography. Assisting him were (l to r) Lorin Grignon, sound engineer; Wm. Weisheit, chief projectionist; Grover Laube, camera engineer; and Carl Faulkner, sound department.



ROBERT L. SURTEES, ASC,
"The Bad And The Beautiful"



RUSSELL HARLAN, ASC,
"The Big Sky"



JOSEPH LaSHELLE, ASC,
"My Cousin Rachel"



CHARLES B. LANG, JR., ASC,
"Sudden Fear"



VIRGIL MILLER, ASC,
"Navajo"



HARRY STRADLING, ASC,
"Hans Christian Andersen"



GEORGE FOLSEY, ASC,
"Million Dollar Mermaid"



WINTON HOCH, ASC,
"The Quiet Man"

Nominees For 1952 Academy Awards

Ten A.S.C. directors of photography nominated for achievement awards for year's best camerawork.

By FRED W. JACKMAN, A.S.C.

TEN DIRECTORS OF PHOTOGRAPHY are in the race this year to receive the gold "Oscars" for photographic achievement to be presented this month in Hollywood by the Academy of Motion Picture Arts and Sciences. Of these, nine are from Hollywood and one from London, England. Of the twenty film productions mentioned here last month as having been selected by Academy members as candidate entries for photographic awards, five black-and-white and five color productions have been chosen in the nominations balloting.



LEON SHAMROY, ASC,
"The Snows Of Kilimanjaro"



FREDERICK A. YOUNG, ASC,
"Ivanhoe"

While it is the productions themselves that are voted upon by the Academy, it is the directors of photography to whom the awards are presented the evening "Oscars" are handed out at the Pantages theatre in Hollywood in gala presentation ceremonies.

The ten productions nominated for photographic achievement awards and the cinematographers who photographed them are as follows:

(Continued on Page 126)



Photographing the celebrated Columbus Boychoir and Founder-Director Huffman in action, with the Maurer "16."

From Maine to Texas

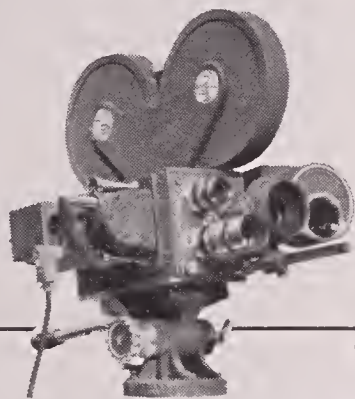


...MUSIC STRANGELY SWEET

A glorious twentieth century American cultural accomplishment is the founding, training and development of the Columbus Boychoir. Singing to packed houses in America's finest concert halls, and in hundreds of cities and towns throughout the land,

"America's Singing Boys" are bringing the joy of music to millions.

"Movies, records and radio have brought our story to the public thousands and thousands of times," says Founder-Director Herbert Huffman, "Now we want a record of our own, so we bought the finest camera we could find, the Maurer '16'."



THE MAURER 16MM., designed specifically for professional use, equipped with precision high-power focusing and view-finder. Standard equipment includes: 235° dissolving shutter, automatic fade control, view finder, sunshade and filter holder, one 400-foot gear-driven film magazine, a 60-cycle 115-volt synchronous motor, one 8-frame handcrank, power cable and a lightweight carrying case.

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**16mm
maurer**

maurer means *finer* motion pictures!



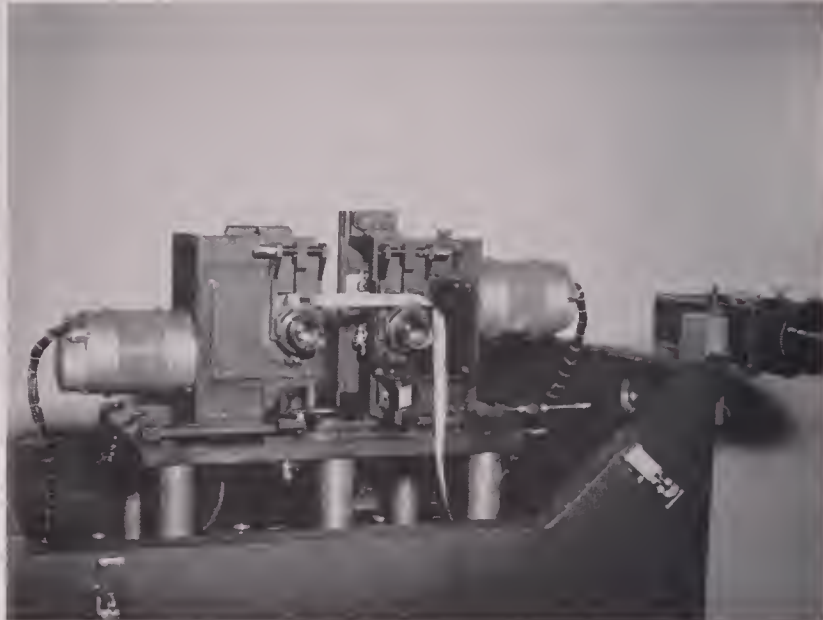
PRODUCERS SERVICE CO.'s. 3-D motion picture camera was specially engineered for 3-D photography, is extremely compact and light in weight. Side view shows twin film magazines, lower section of blimp.



FULLY BLIMPED camera, showing external controls for focus, and the Mitchell-type finder. Beside camera is cinematographer-technician Gordon Pollock, ASC, who collaborated in designing the camera.



RANGE of camera's interaxial is illustrated in photos above and at right. Interaxial is changed by moving cameras laterally. Here cameras are shown at minimum position, giving an interaxial of 1.9 inches.



CAMERAS adjusted to extreme interaxial of 4.5 inches. Here film magazines have been removed. Shafts extending through blimp at right control interaxial and convergence of the cameras.

Producers Service's 3-D Camera

New professional stereo camera has no mirrors, records R and L images on separate negatives that require no reversals or optical correction.

FOR COMPLETELY SATISFACTORY stereoscopic motion pictures having the usual range of long, medium and close-up shots, the ability to vary the interaxial distance between lenses of 2-camera stereo photographic systems is essential. While most all cameras presently in use today provide for this, not all

have the ability to go below the established norm of 2 1/2 inches, which is necessary in order to photograph scenes and subjects at close range completely free of eye-straining distortion.

This is because in most cases 3-D camera equipment has been built by utilizing two conventional motion pic-

ture cameras which, because of certain physical characteristics, do not permit adjusting the lenses closer than 2 or 2 1/2 inches. Obviously, this will be corrected in time, chiefly in the design and construction of cameras especially for stereoscopic motion pictures.

One of the first such cameras is that engineered by Producers Service Co., Burbank, Calif., well-known for having developed some of the most important equipment now in use in motion picture studios. To date, both theoretical analysis and experience have indicated a need of a wide flexibility in the interaxial and convergence variables of 3-D cameras, and especially of a precision of adjustment and film registration equal to that which must be attained in 3-strip

(Continued on Page 130)



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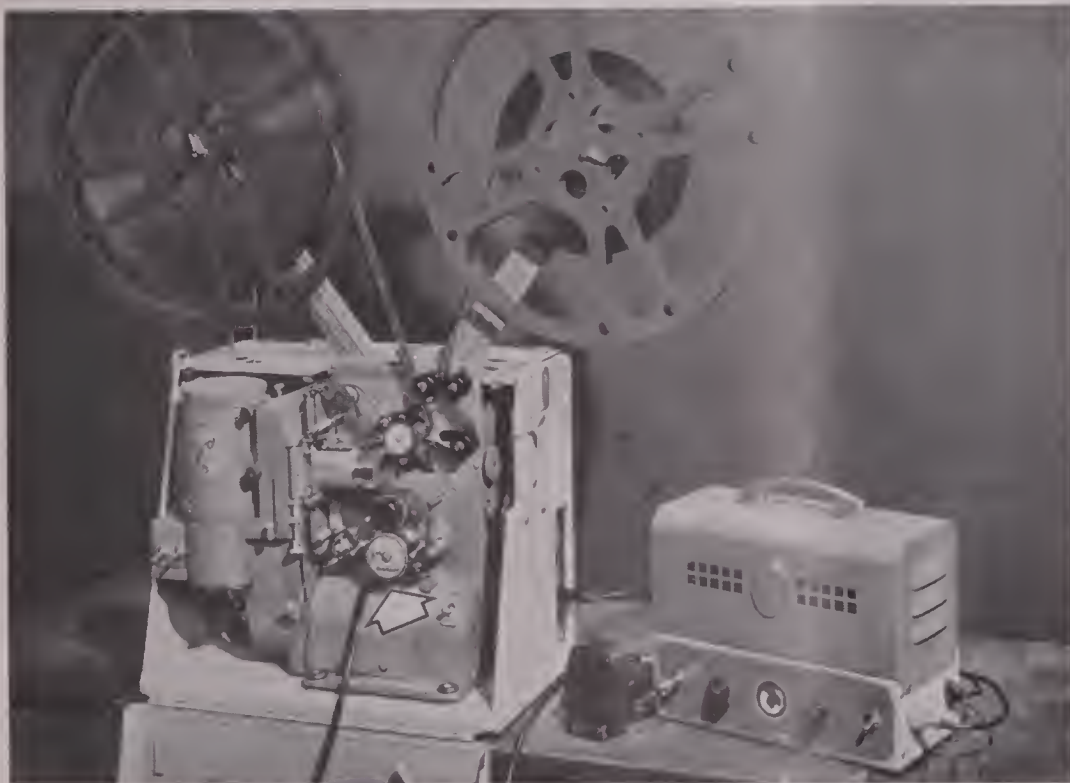
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PHOTO RESEARCH CORP. KARL FREUND, President

127 West Alameda Ave. • Burbank, California

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THE NEW MAGNESOUND attachment converts present Victor 16mm sound projectors to magnetic sound. Conversion is quick and simple. The regular optical sound drum is removed from projector and the Magnesound drum (arrow) inserted in its place. Magnesound amplifier and microphone, which complete the unit, are shown at right. There is no impairment of projector; it is readily re-converted to optical sound.

Magnetic Sound For Victor S.O.F. Projectors

New Magnesound attachment converts present Victor 16mm sound projectors for recording and playback of magnetic sound.

By JOHN FORBES

THE ADVENT OF MAGNETIC SOUND for 16mm films has resulted in the recent introduction of new, combination 16mm magnetic recorder-projectors, which enable anyone to record and play back sound on 16mm films without the need of costly laboratory processing of the sound track. However, it has remained for Victor Animatograph Corporation to bring out an attachment which enables any owner of a Victor 16mm sound projector to convert it for recording and play-back of magnetic sound, at a cost way below that of a new magnetic recorder-projector.

The Victor attachment, tradenamed

Magnesound, sells at present for \$199.45 complete with microphone and carrying case, which is considerably lower than the price presently asked for the new magnetic recorder-projectors. It records and reproduces both voice and music on 16mm films stripped with magnetic sound tracks. The sound can be recorded, erased and rerecorded as desired, as is common with most magnetic recorders.

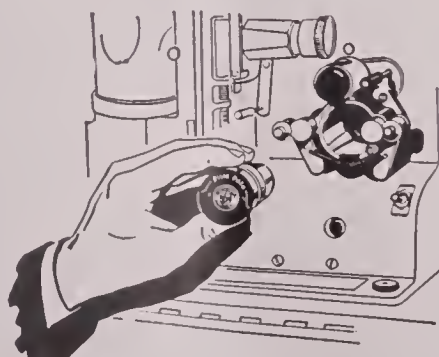
Illustrated here is the complete Magnesound unit attached to a conventional Victor 16mm sound projector. The arrow points to the Magnesound drum, which replaces the regular optical sound drum and exciter lamp of the projector—a simple operation pictured in detail in the illustrations below. The optical drum and components are easily removed simply by releasing a set screw; then the Magnesound unit is slipped into place, the set screw tightened, and the projector is ready for magnetic sound recording and reproduction.

The Magnesound attachment consists of recording amplifier with a simple control panel, the Magnesound replacement drum, and microphone. In use, the Magnesound amplifier is interconnected with the projector sound system by a convenient lead which plugs into the phono jack of the projector.

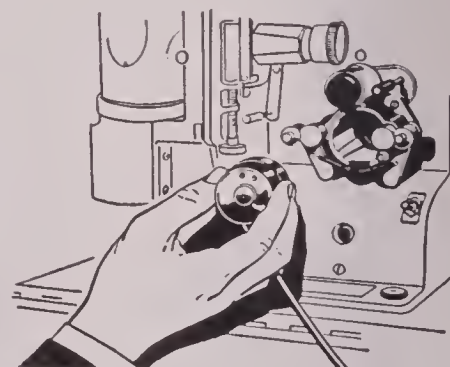
The Magnesound amplifier is as easy to operate as a radio or phonograph. Two knobs—one for determining volume for the recording, the other for selecting record and playback positions—are the only controls needed to operate the unit. A recording "eye" indicates proper recording level. A safety device guards against unintentional erasure of a recording.

With a Magnesound attachment on your Victor sound projector, you can record your own sound on any films you may now own having optical sound tracks; you can record sound on existing *silent* films; and you can record sound on any new film that you may make. In all instances you must first

(Continued on Page 124)



STEP 1—Release set screw, remove optical sound drum and exciter lamp from your Victor sound projector.



STEP 2—Replace with Magnesound drum, tighten set screw—and the attachment is installed, ready for use.

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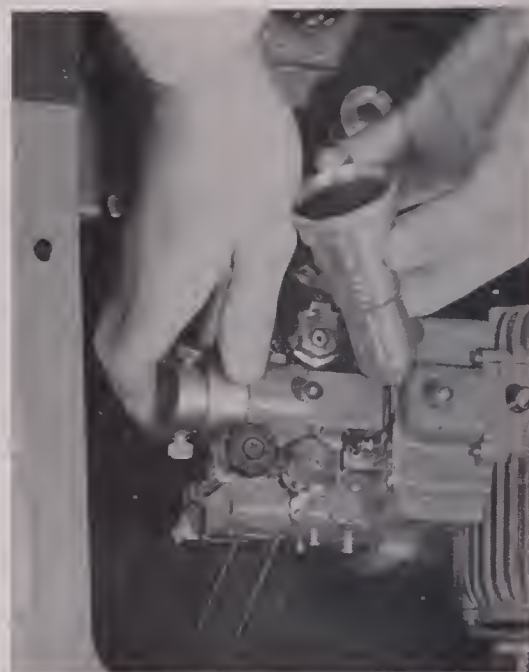
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THE STEREO attachment for the Bolex DeLuxe H-16 camera replaces the regular camera lens, provides adjustment for convergence and setting of $f/$ stops. A special mask is also provided for viewfinder. Attachment may be used only on Bolex cameras.



TO PROJECT 3-D movies made with the Bolex camera, a special lens is provided for the projector. The attachment may be used with almost any 16mm sound or silent projector.

Cine Amateurs Can Make 3-D Movies, Too

By PHILIP TANNURA, A.S.C.

NOW THAT HOLLYWOOD has gone all out for stereoscopic movies, there is a flurry of interest in 3-D on the part of amateur movie makers everywhere. The interesting thing about this new movie innovation is that any amateur cine filmer with 16mm equipment can make three-dimension movies, too—and many have been for some time. Some explored the intricacies of stereo cinematography and projection years ago, building their own equipment for both taking and showing three-dimension motion pictures.

Today, equipment for 3-D home movies is ready-made for the amateur. Prominent is the equipment of Paillard-Bolex and the Nord Company, both of which previously were announced in the pages of *American Cinematographer* and other photographic publications.

To make and show three-dimension home movies two accessories are required: (1) an optical "scene-splitting" device for the camera lens, and (2) a similar attachment for the projector. Of the two systems mentioned above, the Bolex is perhaps the most extensively engineered (It is the more expensive of the two). The Bolex unit for the camera is actually a lens, which replaces the regular taking lens of the camera. Properly termed, the unit is known as the Bolex Stereo Yfar $f/2.8$ taking lens. It may be used only with the Bolex DeLuxe H-16 camera.

It consists of a pair of fixed-focus lens elements rated at $f/2.8$ set at the rear of a housing having the two openings at the front through which the scene is recorded as twin images and transported through the optical system to the film. On the film the twin images have a vertical format, each about a

half-a frame in width and a full frame in height. Lining up and viewing the 3-D scene is accomplished through the Octameter finder, which is adapted for stereo filming by offset

DR. O. H. GRIST, Glendale, Calif., eye specialist, built his own stereo movies equipment, using two Eastman 8mm cine cameras interlocked mechanically for photography. To project the films, he rigged up twin 8mm projectors, as pictured at far right.



brackets and a simple, slip-on stereo mask.

A knurled knob controls the precise setting of diaphragms of both lenses, which have a range of from $f/2.8$ to $f/22$. The attachment permits shooting 3-D movies of subjects from 5 feet to infinity. A closeup attachment, now being developed by Paillard, will be announced shortly. Either 16mm color or black-and-white film may be used; the lens is said to be fast enough for limited color photography at night.

To project stereoscopic movies, Bolex provides a special twin projection lens unit, which replaces the regular projector lens. Unlike with the taking lens, the Bolex stereo projection lens may be used with almost any 16mm sound or silent projector. Two knobs on the lens provide focusing and alignment adjustment—simple as focusing the conventional projector lens.

To screen stereo movies which require Polaroid viewing glasses, a metallic silver screen is required. This is usually coated with a fine grade of aluminum paint. A metallic screen is necessary for all stereo projection, because any other type depolarizes the light and renders the 3-D images void.

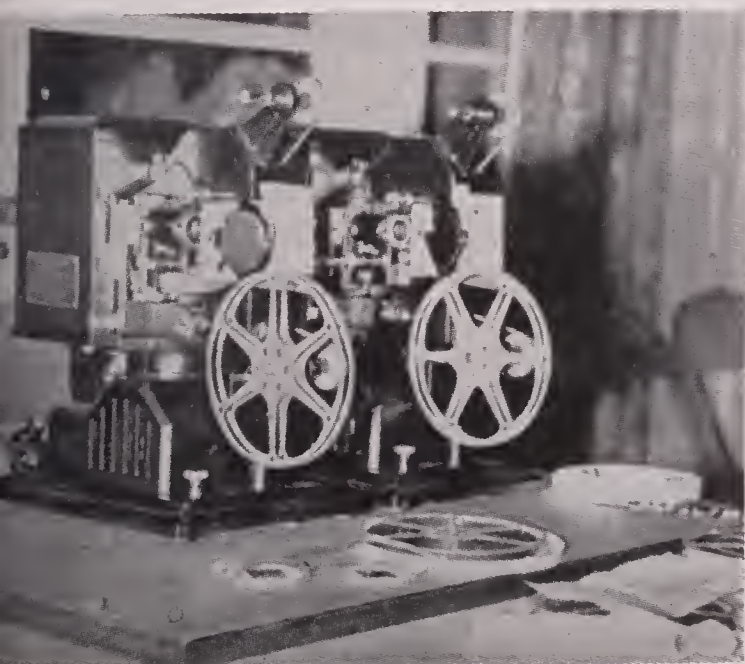
Bolex offers a complete outfit for making and projecting 16mm stereo movies for \$397.50. This includes the taking lens, the projection lens, metallic screen and two pairs of Polaroid viewing glasses. Additional viewing glasses are available at small cost.

Perhaps the first to introduce a practical system for making and showing 16mm stereoscopic home movies was the Nord Company, Minneapolis, Minn., whose equipment was described in detail in the February, 1952, issue of *American Cinematographer*. The Nord equipment is attached to the camera by means of a bracket which fastens to the tripod socket. The unit will enable one to make 3-D movies with practically any make or model 16mm camera having a one-inch lens. When shooting, the regular camera viewfinder is not used. The scene is lined up through the reflex finder on top of the Nord Camera Converter.

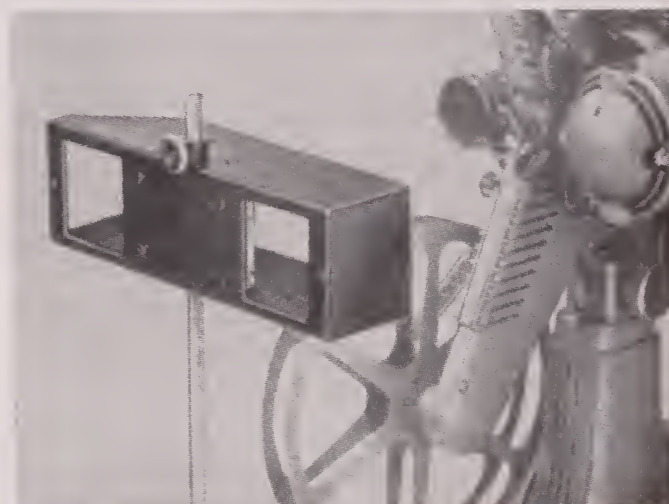
Since the camera unit does not attach to the lens itself there is no problem of adapters; nor does the speed of the lens or size of the barrel affect the use or mounting of the unit.

The bracket is a machined aluminum casting, and is universally adjustable so that with the aid of a screw driver it can be adjusted to suit any make of equipment. In fact, the

DR. GHRIST mounted two 8mm projectors on a baseboard and interlocked them by mechanical linkage so they would turn with the shutters opening and closing in unison. Right and left images were projected to metallic screen through Polaroid screens mounted before either lens.



THE NORD STEREO ATTACHMENT for cine photography is called a 'converter.' This is attached to camera by means of bracket fastened to tripod socket. Camera viewfinder is dispensed with, and pictures are lined up through the reflex viewfinder in top of converter.



NORD converter unit mounted before projector. A special screen of vertical format, and special Polaroid viewing spectacles complete equipment necessary for viewing stereoscopic home movies.

only part of the entire kit which is "special" is a small clip used to guide the side of the camera so that the lens always points directly into the optical head.

This new camera unit should not be confused with any of the devices tried in the past, which used mirrors to separate the images to form a stereo pair. The principles employed are quite new and involve several optical wedges which are achromatized.

The camera lens, looking through this optical head at a scene, records two images which correspond to the right eye and left eye views required for a true and accurate 3rd dimension movie. These twin-picture images are recorded on the film side by side in the space normally occupied by a standard single frame image.

Since the entire stereo unit attaches to the camera in the same way that the camera would be mounted on a tripod, it can readily be attached or detached as occasion demands and there is no machine work or alteration required on the

(Continued on Next Page)



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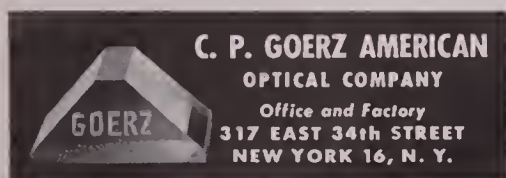
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AMATEUR 3-D MOVIES

(Continued from Preceding Page)

camera itself. It can be used with the camera either hand-held or mounted on a tripod. With the unit in place stereo movies are made in the same way that has always been employed for flat movies. In fact, the only difference is that you increase exposure by $\frac{2}{3}$ stop, just as if you were using a filter. The camera unit may be used with black and white or color film, and the processing is unaffected.

Projection of the stereo films involves the use of the Nord Projector Converter. This is an optical unit housed in a metal case and supported on an independent base, so that it is unnecessary to attach the unit to the projector at all.

In use, the projection unit is placed on the same table with the 16mm projector at a distance of approximately one foot ahead of the projection lens. The beam of light passes through this unit on its way to the screen. The exact position of the unit is not particularly critical. The projection unit does two things. It polarizes the light independently for the right- and left-hand images and at the same time it overlaps these images in correct registration. Two simple adjustments are provided so that by turning two knobs the images can be aligned independently in both the vertical and horizontal positions. Ordinarily once these adjustments are made for a particular projector they need not be repeated unless, of course, the settings are disturbed between showings.

As viewing 3-D movies with the Nord equipment requires the spectator to wear Polaroid glasses, the same as with Bolex 3-D movies, a metallic screen is also required for projection.

Interesting is the fact that the Rivoli Theatre in New York City is presently using the Nord Projector Converter to screen a program of 16mm stereoscopic movies which was made especially for this theatre. The unit reportedly provides maximum theatre quality of the screened pictures, which are projected by a 16mm high-intensity arc projector.

The complete Nord 3-dimension movies kit includes the camera unit, the bracket with whatever clip is required for your particular camera, the projection unit with supporting base, test film, two pair of cardboard type Polaroid glasses and a special screen. Price is \$83.50.

Long before either Nord or Bolex offered equipment for making 16mm 3-D movies, several ambitious amateur movie makers successfully built equipment for photographing and screening 3-D films. One of the most notable developments in this field, perhaps, was that of Dr. O. E.

Christ, a Glendale, California, eye specialist.

Dr. Christ first demonstrated his equipment back in 1938. Notable is the fact the equipment was designed for 8mm movies.

Mr. Christ used the same polarized light principles that have been successfully displayed both by amateur and professional in the 16mm and 35mm fields. It is believed his 8mm adaptation is the most successful yet from the standpoint of simplicity, cost of equipment, and cost of producing stereoscopic home movies.

Two Cine-Kodak eights, Model 20, were used by Dr. Christ in photographing his stereo pictures. The two cameras were mounted on a common base, far enough apart to permit access in loading and winding the two machines, as pictured in the accompanying photographs. Through the base ran a shaft, to which a cog was rigidly attached to each end. The cogs protruded out of the base far enough to mesh with a large cog which was part of the camera motor mechanism.

An opening was cut into the bottom of each camera to afford access to the winding gear and subsequent connection with the external gear and shaft.

The cameras were then bolted to the base, with each winding gear in mesh with the external gear and shaft, thus effecting positive synchronization of the two cameras.

Since the two cameras were thus locked in mechanical sync, one starting button was left permanently "on." The two cameras were started and stopped by the control button on the second camera.

In projection Dr. Christ employed two 500-watt Eastman projectors locked in sync by means of a shaft and universal joint connecting both machines. Suitable Pola screens were placed before each projection lens, and the spectator wore Polaroid glasses to view the pictures, the same as with 3-D movies today. The regulation metallic screen was, of course, used for projection.

Although Dr. Christ successfully achieved stereoscopic 8mm movies more than fifteen years ago, he has never lost interest in this phase of movie making. Being among the first photographic hobbyists to take up movie making, Dr. Christ continues one of the most avid of non-professional movie makers.

In the beginning it was his interest in displaying pictures of the physical structure of the human eye that led him into research of 3-D movies as a means of presenting his subject even more

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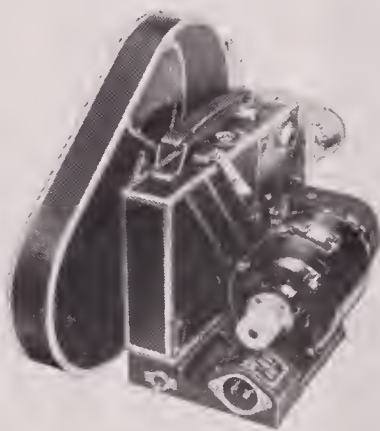
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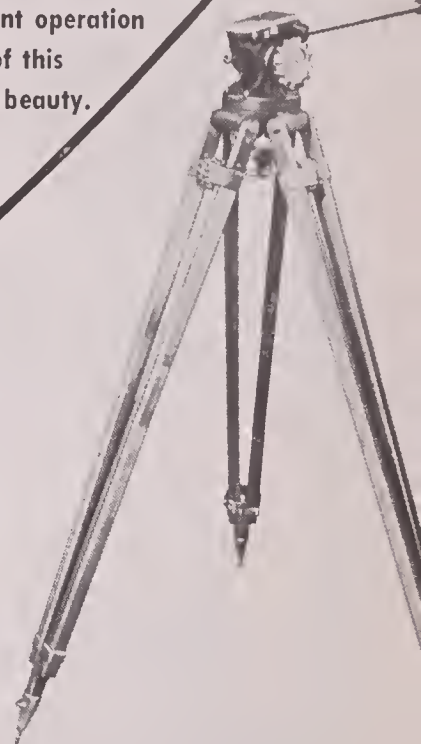
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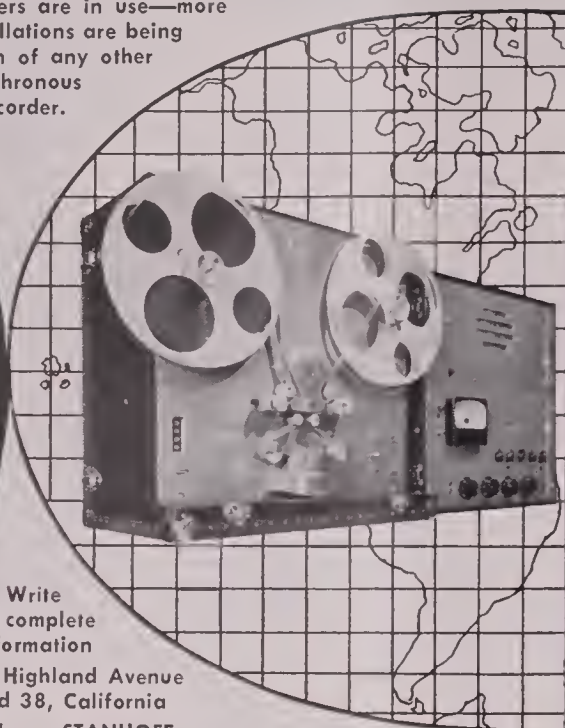
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realistically. Today, he is completing work on more advanced 3-D movie equipment. This he hopes to announce to the public within a few months.

In the meantime, many another serious cine amateur is bound to be inspired by the new pictorial thrill which stereoscopic movies afford. Already there is considerable interest manifest in the commercial equipment for 3-D home movies, described earlier, and it is likely that there will be a great many home-made 3-D adaptations taking shape before long. Putting together equipment for making and showing stereo movies is an interesting and challenging project for any avid cinebug looking for new fields to conquer.

MAGNETIC SOUND

(Continued from Page 118)

forward your film to a laboratory for an inexpensive application of the sound stripe on edge of the film. This is a narrow ribbon of magnetic iron oxide coating. This coating or sound-stripping service is offered by Eastman Kodak Company, Bell & Howell Company, and by Reeves Soundcraft Corp., New York, N. Y. In all instances, the 16mm film to be coated must be single-perforated—that is, having sprocket holes on but one edge of the film. In the case where you wish to add sound to your old double-perforated 16mm films, it will be necessary first to have dupes made on single-perforated stock, and then have the film striped for magnetic recording.

The application of a magnetic track to existing sound films having an optical track, does not impair use of the optical track, so that it is possible to play back either track as desired.

Magnesound will record or playback at either 16 or 24 fps, making it possible for you to add sound to movies shot at either sound or silent speed.

Because the recordings are made while the film is projected, absolute synchronization is assured. After recording sound, you simply reverse or re-thread the projector and play back the sound immediately. Editing of sound track is simple, too; you can re-record any number of times on the same film. In short, recording procedures are essentially the same as for all average home tape recorders.

In offering the Magnesound attachment to owners of Victor 16mm projectors, Victor Animatograph Corporation has taken an important step forward in making simple sound recording available to the average amateur movie maker. Attractive is the fact one does not have to dispose of his present Victor

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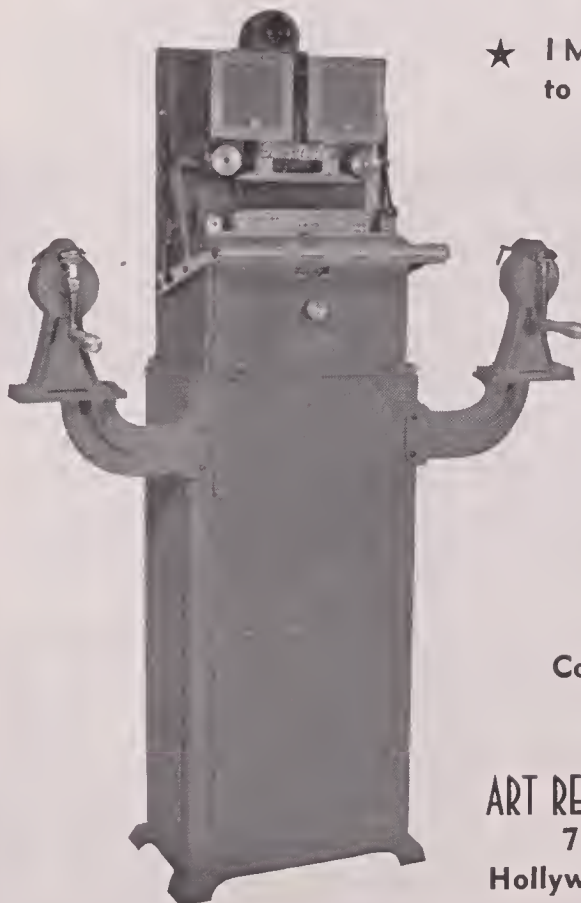
sound projector in order to obtain the advantages of the newer, simpler magnetic sound. He retains his equipment and simply improves it with the Magnesound attachment.

This is in line with the oft-expressed wishes of so many amateur movie makers for simple, low-cost magnetic recorder-playback equipment that would provide synchronized sound for amateur movies—both 8mm and 16mm—in conjunction with their present silent projectors. Perhaps this is just around the corner. Victor's Magnesound, it is believed, is bound to stir up some sound thinking along this line among other equipment manufacturers. In the meantime, if you own a Victor 16mm optical sound projector, magnetic recording of sound for your home movies can now become a reality. END

A new camera control system which permits motion picture cameras to be cut in and out of line as needed during the filming of TV shows has been developed by Ferenz Fodor, Filmcraft Productions, Hollywood.

Although no prizes or trophies are offered by the Edinburgh Film Festival, the certificates awarded to all films selected for showing is esteemed a high honor.

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1952 AWARDS NOMINEES

(Continued from Page 114)

BLACK-AND-WHITE PRODUCTIONS

"The Bad And The Beautiful," (MGM) Robert Surtees, ASC.
"The Big Sky," (Fox), Russell Harlan, ASC.
"My Cousin Rachel," (Fox), Joseph LaShelle, ASC.
"Navajo," (Lippert), Virgil Miller, ASC.

COLOR PRODUCTIONS

"Hans Christian Andersen," (Goldwyn), Harry Stradling, ASC.
"Ivanhoe," (MGM), Frederick A. Young, ASC.
"Million Dollar Mermaid," (MGM), George Folsey, ASC.
"The Quiet Man," (Argosy-Republic), Winton Hoch, ASC.
"The Snows Of Kilimanjaro," (Fox), Leon Shamroy, ASC.

Of the ten cinematographers, six have previously won awards for photographic achievement. For his outstanding photography of MGM's "King Solomon's Mines," Robert Surtees won an "Oscar," a Look Award, and a Golden Globe Award in 1951. In 1952, he won his second Golden Globe Award for the color photography of "Quo Vadis," which he co-directed with William Skall, ASC.

Joseph LaShelle won an "Oscar" in 1944 for the photography of "Laura."

Charles Lang, Jr., garnered his initial "Oscar" in 1933 for the superlative photography of "Farewell To Arms."

Harry Stradling joined the "Oscar" winning ranks in 1945 when he won an award with his photography of "The Picture Of Dorian Gray."

If Winton Hoch captures an "Oscar" in the color films class this year for his lensing of "The Quiet Man," it will be his third. He won his first in 1948 for "Joan Of Arc," and repeated the following year when his artful color photography of "She Wore A Yellow Ribbon" easily won him an Academy award for photographic achievement.

Leon Shamroy leads the roster of contenders this year with a total of three "Oscar" statuettes on the mantle in his home. These were won by him in 1942 for "The Black Swan," in 1944 for "Wilson," and in 1945 for "Leave Her To Heaven." In this respect Shamroy is tied with Arthur Miller, ASC, who also has won three "Oscars" for photography. Should Shamroy win an award for "The Snows of Kilimanjaro" this year, he will become the leading "Oscar" winner among cameramen—the only one to have won four Academy awards. Previously, Shamroy won a Look Award in 1944 for the photography of "Wilson," and another in 1950 for photography of "Twelve O'Clock High"—both Fox productions.

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Frederick Young, of London, England, is the sole foreign contender this year; it is the first time one of his pictures has been nominated for an Academy award for photography.

The respective merits of the photography of the ten nominated productions will be the subject of much discussion and no little controversy during the next few weeks which precede the final voting and awarding of the Oscar trophies at the Academy's gala presentation ceremonies. This will take place at the RKO-Pantages theatre in Hollywood the night of March 19th.

The selection of films for the Academy's annual Cinematography Awards begins each year with the cinematographers themselves. The first of January, each director of photography in the Hollywood motion picture industry is invited by the Academy to enter one black-and-white production and one color production on which he has received single or joint screen credit. Titles of these films are included on a preliminary or "primary" ballot, which is then sent to all directors of photography in the industry. In addition, each director of photography must submit any one eligible black-and-white and one eligible color foreign production which he deems worthy of Awards consideration. Thus, foreign-made films have a chance to compete with Hollywood films for "Oscars."

On receipt of the preliminary ballots, each director of photography then votes for ten or less productions in each classification, in the order of his preference. The twenty productions receiving the greatest number of votes are then screened by the Academy to give all directors of photography opportunity to see these productions under the same conditions.

Following these screenings, a nomination ballot, listing the ten black-and-white and ten color productions is sent to all directors of photography with instructions to vote for not more than five in each classification in the order of preference. The five productions in each class receiving the highest number of

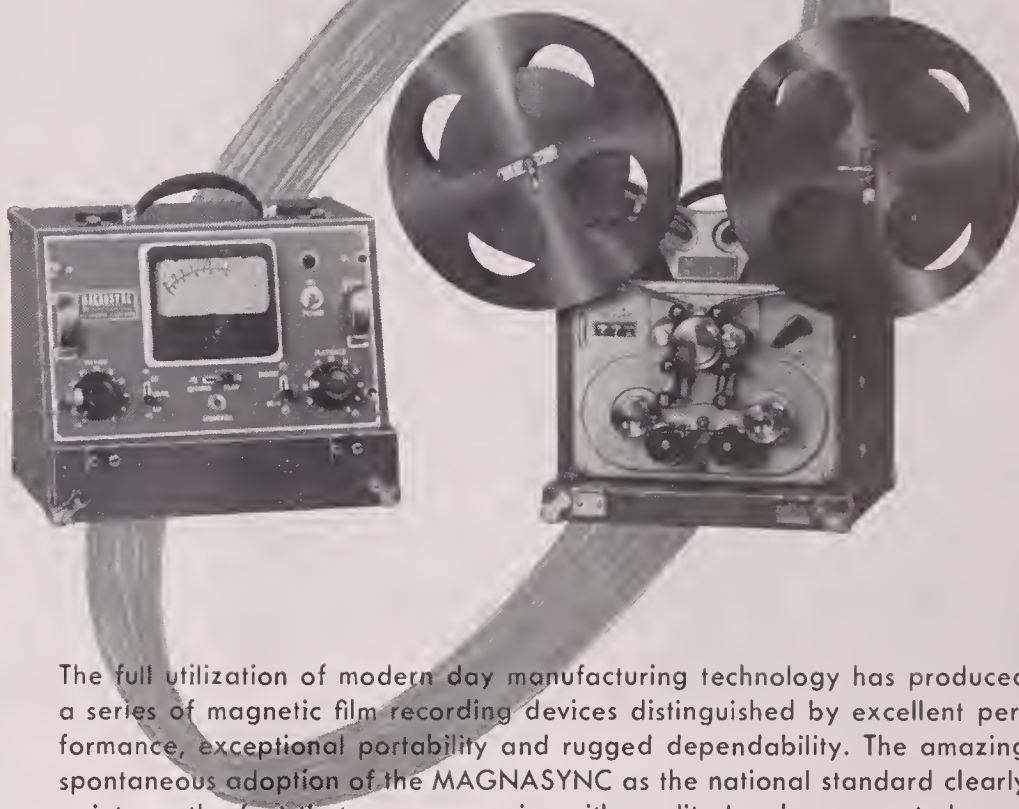
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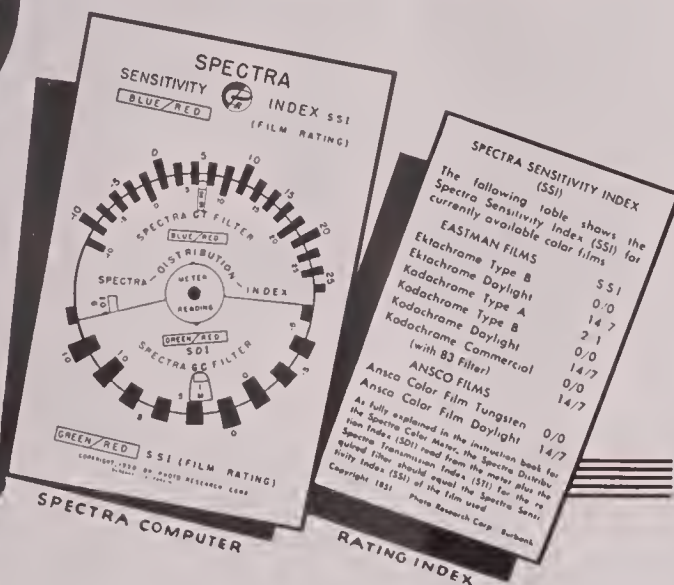
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votes are nominated for the cinematographic awards.

Directors of photography are eligible to vote in the preliminary voting and nomination voting. Only Academy members participate in the final voting which selects the best film in each class for the photographic achievement award. Here, for the first time, the voting is not confined exclusively to directors of photography, but is participated in by members of all branches of the industry who are members of the Academy.

When the Academy of Motion Picture Arts and Sciences was founded in 1927, one of its expressed purposes was that of "encouraging the arts and sciences of the profession by . . . awards of merit for distinctive achievement." In undertaking this project, the Academy founders were moved by a desire to dignify the film medium as a whole. Today, hardly anyone would dispute the contention that with the exception of the press, motion pictures stand as civilization's most important medium of popular entertainment and education. One manifestation of this interest is the remarkable number of organizations which, over the years, have followed the Academy's lead in honoring the achievements of film-makers. However, Oscar—the gold statuette awarded annually by the Academy—remains the most respected and sought-after trophy of them all.

Ballots for the final vote were mailed to approximately 1700 qualified Academy member-voters on February 24th, with deadline for balloting set for March 10th. Ballots will be tabulated by a prominent Los Angeles accounting firm, and the results kept secret until that eventful March evening when they will be revealed to the world at the Academy's presentation ceremonies. END

PRACTICAL FILMING TECHNIQUES

(Continued from Page 107)

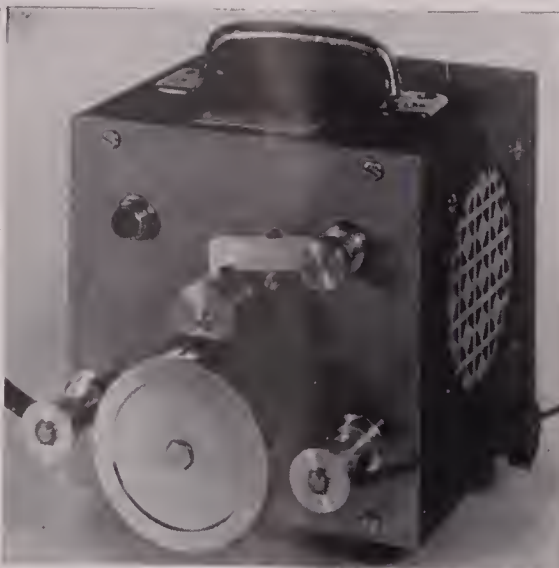
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the frame. It is disturbing to cut on a shoulder or to have the hands of the players going in and out through the frame, which in 3-D has solidity.

In three-dimension films, the eye scans the scene much more than in the flat picture. For this reason it is desirable to have as much definition and depth of focus as is possible. For the same reason excessive contrast and empty shadows place a hardship upon the spectator who automatically is trying to analyze every part of the picture.

Much of the present technique can be retained in 3-D cinematography. Boom shots, pan shots, travel shots and such can be used to good advantage where provision for follow focus and lens con-

version on the principal objects of interest is accommodated. As the spectator is constantly adjusting his vision to each scene, it is good practice to plan sequences so as little cutting from one scene to the other is necessary. Dolly shots eliminate many of these quick cuts, and are therefore suggested. While the camera must be level laterally, there is no objection to tilting it up or down.

It is interesting to observe the audience participation in such scenes as those made from a roller coaster, tilting forward or backward as it helps the illusion in this type of scene. In long shots it is well to include more of the foreground than is usual with flat pictures. This provides an unobtrusive depth effect. Scenes made from parallels or other high set-ups preclude this foreground effect and should be avoided where possible.

In due time, better adjusted and therefore more comfortable Polaroid glasses will be available to the moviegoer as more 3-dimension films become available. In fact, prescription viewing glasses of the clip on type having Polaroid stereo lenses will be worn by those who ordinarily need glasses so that they may more fully enjoy the thrills of the realistic presentation that this medium will bring. As we learn to make 3-D productions without distortion and mechanical errors, the present objection to glasses will be overcome. It is reasonable to believe that comfortable glasses are no more objectionable than viewing a film through the windshield of a car at a "Drive In."

What about process shots, matte shots and some of the other special photographic effects we presently use? On the whole, rear-projection process can be used for 3-D films much as at present. Most plates or "keys" contain only distant objects. The foreground objects will be placed in front of the screen as usual and photographed with the 3-D cameras. In most cases this arrangement will reproduce satisfactory results. Straight side-angle plates from moving cars may take preference to say, three-quarter angles because in the former there is a natural separation of the angle of view between successive frames that correspond to the 3-dimension camera. Where present process cannot be used, double Polaroid projection plates with filters on the cameras and projectors, or the traveling - matte - color - separation method for each film can be utilized.

The usual matte painting concerns only distant vistas with small divergence or depth. In these cases, the same painting can be used for each film. Those cases where portions contain middle distant trees, buildings or other objects, will be repainted in proper perspective

(Continued on Page 138)

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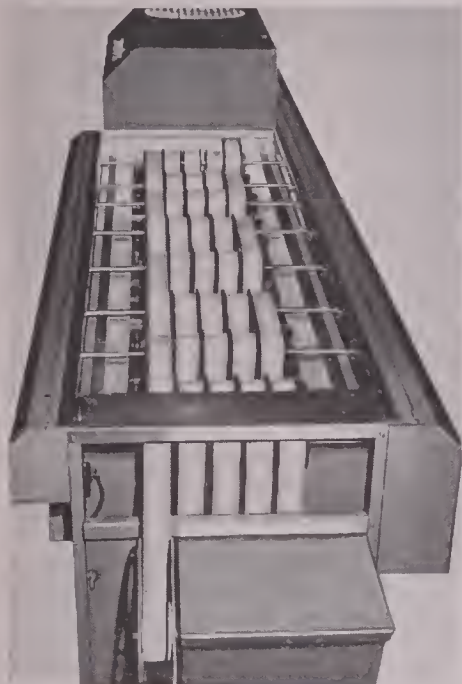
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3-DIMENSION CAMERA

(Continued from Page 116)

color cameras. It is on this basis that Producers Service engineers have proceeded in the design of their 3-D camera.

Pictured in the series of photographs on this page, the PS 3-D camera is compact in size and moderate in weight, providing the flexibility needed in feature film production. The two cameras, actually film transport and recording units, are specially designed and constructed around Cunningham camera movements, well known for precision and accuracy in performance over a long period of use. The assembly resembles two conventional cameras mounted side by side in that the two housings are so mounted, affording close positioning of the lenses—so essential to obtaining a minimum interaxial distance. Each unit carries its own 1000-ft. film magazine mounted at the rear; magazines are readily demountable and interchanged.

To facilitate loading and threading, one camera is hinged at the base, allowing it to be tilted forward. This permits access to the film gate and sprockets, located on the side adjacent to the companion camera. Instead of the conven-

tional hinged camera door, the door on either camera consists of a sliding panel fitted to grooved tracks of close tolerances.

The camera affords a range of interaxial from 1.9 inches to a maximum of 4½ inches. To vary the interaxial, one camera is moved laterally on a calibrated base by means of a geared shaft extending through side of blimp and fitted with a handle.

To vary the convergence, the opposite camera is toed-in as required by means of a second crank outside the blimp controlling a geared shaft leading to the camera base. Here an important innovation has been worked out which enables the operator to observe and check convergence through a finder system that involves two mirrors operating much the same as the conventional range finder. Thus it is never necessary to check convergence directly through the camera lenses.

Focusing of lenses is also done manually by means of a calibrated dial on side of the blimp. Eventually, this operation will be controlled by a Selsyn motor operating the coupled lenses in unison by remote control.

Instead of the conventional focusing system whereby the lenses are screwed in and out of the camera mount, lenses are moved in and out of their mounts—i.e., toward or away from the film plane—by a precision cam and lever arrangement. The lenses, which are carefully matched, coated, and T-stop calibrated, are precisely registered in mounting to insure parallel exposures at all stops, and are mechanically coupled so that both lenses are set simultaneously. By means of the external manual control and the calibrated dial, varying focus during follow focus shots can be a precise operation.

Driving the two cameras in synchronism are two Selsyn "slave motors." These are driven through a Selsyn generator powered by a 110-v, 50-60 cycle sync motor. Generator and motor are in a separate housing and operate remotely, contributing further to the flexibility and light weight of the camera unit.

The fully blimped camera forms a compact and easy to handle unit for either studio or location use. The sponge-rubber-insulated blimp is approximately 24" X 28" X 28", having a cover which is entirely removable to afford full access to camera.

The company points out that one of the chief advantages of its camera is the fact no mirrors are involved in the photography. Each of the two lenses records the scene direct, making unnecessary any reversal of image or special optical printing. In other words, the camera delivers two negatives—one for the right and one for the left images—

having the same characteristics as those produced by conventional motion picture cameras in 2-D or "flat" cinematography. This is important, especially where Eastman or Ansco color negative is used because it makes it possible for laboratories to provide rushes a full day in advance over methods that require special printing of negatives.

Producers Service completed its first 3-D camera February 27th—the first of six scheduled for immediate construction. The cameras to follow will have several advanced features not incorporated in the first model. They will be smaller in overall size, have specially designed right and left film movements, and a focusing system synchronized for motor-driven remote control follow focus. The finder on the new models will be a new improved reflex type having a brilliant aerial image of constant brilliance irrespective of the f/value, and will be parallax-free.

Credited with the major portion of the engineering is Jack Kiel, chief engineer of the company. Gordon Pollock, ASC, cinematographer, inventor, and camera technician of note, has been serving as consultant to Kiel. Pollock becomes Producer Service's stereo technician and chief cinematographer. The company will lease its 3-D cameras to both major and independent producers, with Pollock's services as director of photography and stereo technician included.

First producer to use the new 3-D camera will be Lippert Productions, scheduled to begin shooting its first stereo feature film the first week of March.

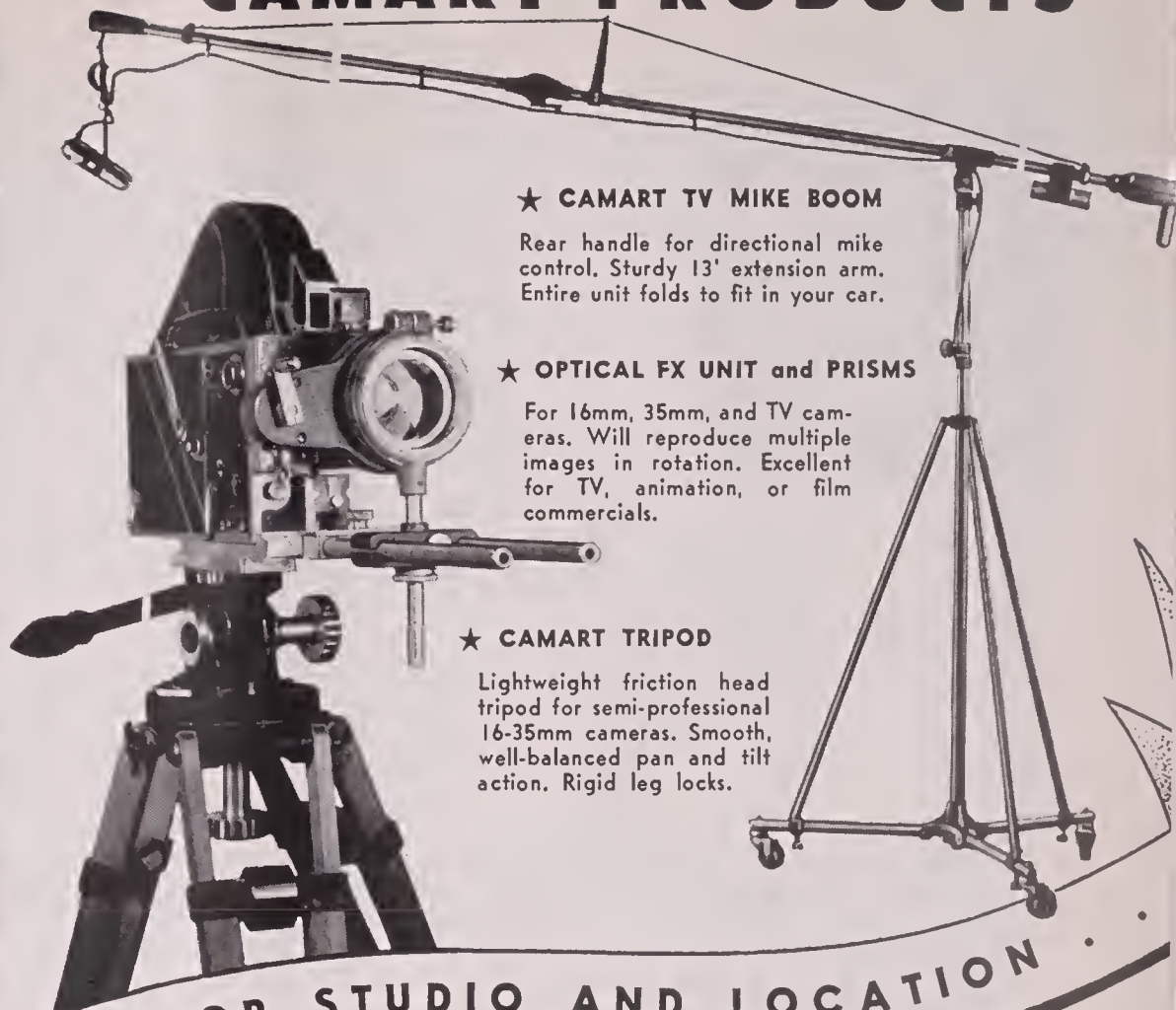
Soon to be completed by Producers Service is a 3-D camera of still another type, employing Bell & Howell cameras mounted at right angles and affording "zero" interaxial for miniature and special effects photography in three-dimension. This also will be a "service" camera for lease to studios as required.

CINEMASCOPE

(Continued from Page 113)

CinemaScope attachment on the camera, it is reported, does not alter the exposure time. One minor change, in addition to the auxiliary lens, will be that of enlarging the horizontal scope of the camera viewfinder so that it will be possible for the cameraman to see the actual area taken in by the anamorphoscope auxiliary in front of the camera lens. The wide-range viewfinder viewing glass will have two vertical cross hairs which delimit for him the field of the ordinary screen (or standard aperture) inside of which he may assemble the elements of action when it is desired to

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present the action in the ordinary manner.

Checking the scene directly through the lens will present something of a problem because what the cameraman sees through the lens will be an optically compressed scene, the same as will be registered on the film. Because the stereophonic sound tracks of CinemaScope films will be separated from the picture film, the picture will occupy the full width of the 35mm aperture. In most cases, the 3-dimension sound will be recorded on magnetic film, in three separate tracks, as picked up by three microphones placed strategically in or above the set.

Although closeups are reproduced dramatically in CinemaScope films, fewer may be needed because medium shots of actors in groups of three and four show faces so clearly that the most minute emotions and gestures are obvious.

In the beginning, it is likely that most CinemaScope productions will be basically outdoor spectacle dramas. This will go a long way toward solving the lighting problem—which undeniably will be great when it comes to shooting the large wide-angle sets indoors on the sound stage. Also, it is likely there will be less emphasis on effect lighting, admittedly not so important where films are shot in color.

CinemaScope poses a number of prob-

lems, too, for the film editor. One studio cutter said CinemaScope will make necessary a special horizontal enlarging lens for Moviolas, which will enable cutters to view CinemaScope film with the image fully unscrambled or rectified. Film cutting problems in the new medium, he said, will not be as great as was at first expected because there won't be as many cuts in CinemaScope films as with standard productions. Cuts will be like stage plays where the spectator visualizes closeups and medium shots when he focuses his individual attention on the principal player or some specific bit of action.

Where closeups are necessary, he went on to say, it is likely that these will be photographed with the player just a little to the right or to the left of the frame center—not too far to one side nor with part of the frame blacked out, as has been practiced in some other wide-frame systems.

The cutting of the stereophonic sound tracks, perhaps, will pose one of the greatest problems for cutters, for unless the scene is properly composed both for sound and picture, cuts may occur at the very highpoint of, say, dialogue coming from the extreme right of the screen, with sound for the succeeding cut jumping back to the extreme left of the screen.

In the beginning, film editors will

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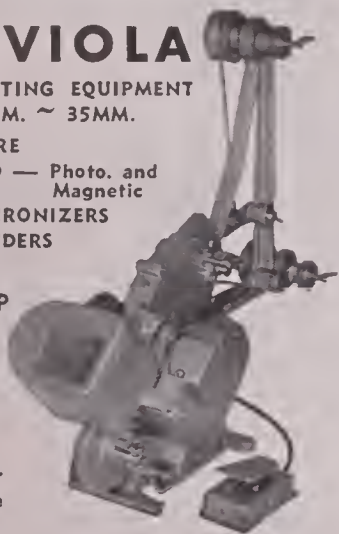
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Anamorphoscope Lens Not New—Goerz-American Marketed One For 16mm Movies Back In 1931

LIKE STEREOSCOPIC MOVIES, which are now sharing the spotlight along with CinemaScope, wide screen movies are not a new discovery. As with sterco movies, they have simply been rediscovered after having been introduced publicly—about 20 years too early. The C. P. Goerz-American Optical Company placed on sale in the early thirties the Staats-Newcomer-Goerz "Cine-Panor" lens for 16mm movies, which the company stated then "takes and projects a 50% wider picture."

The lens was the development of Dr. Sidney H. Newcomer, a New York physicist and mathematician. Describing the lens in an article in the *American Cinematographer* for May, 1931, Fred Schmid, then vice-president of Goerz, stated: "This new lens consists entirely of cylindrical lens elements instead of spherical lenses of the regular photographic lens. It does not produce an image by itself, but has to be used in conjunction with the regular photogaphi-

ic lens of the camera when taking wide-field pictures. In the same way the same lens must be used in front of the projection lens when screening the films photographed with it . . . This same principle of producing wide-field screen pictures with standard 35mm cameras and projectors can be adapted for the professional screen as well by making the auxiliary lens system of suitable size. That it hasn't been done is most likely due to the uncertainty in the minds of motion picture producers whether, under present economic conditions in the motion picture industry, the time is opportune for introducing this new feature." (There was a depression on at that time, remember?—EDITOR).

Despite the potential promise it held, the Cine-Panor, it is reported, was withdrawn from the market shortly afterward due to some patent difficulties. It is understood, though, that Dr. H. H. Newcomer retains control of the same lens system for 35mm films.

have to feel their way cautiously, as indeed will all other technicians. There will be a greater need for unstinted co-operation between the production planners, the director, cameraman and cutter, in order to effect the smoothest possible result on the screen.

Of great importance to the viewer, there is no distortion of images in CinemaScope pictures from any seat in the theatre. Screens, specially developed for the new system for extra brilliance, may be any length desired to fit any theatre. The screen used for projecting tests at 20th Century-Fox studios is 64 feet wide and 25 feet high. A theatre like New York's Roxy would probably use one 80 feet long with proportionate ratio of height to width. The screen curves to a depth of five feet—enough to afford a feeling of engulfment without reflecting annoying highlight from one curved end of the screen to the other, as deeper curving screens are said to do.

Due to the immensity of the screen, few entire scenes can be taken in at a glance, enabling the spectator to view them as in life or as one would watch a play when actors are working from opposite ends of the stage.

Commenting on CinemaScope, following a series of test screenings at the studio, director of photography Joe MacDonald, ASC, said: "People will see things they've never seen before. When you look at CinemaScope it's like taking off blinders. It gives all the three-dimensional feeling that people want. Every cameraman that I've talked to is enthused about CinemaScope because it will enable him to make a more substantial contribution to story-telling. Scenes will be longer and more intricate."

Supervising Art Director Lyle Wheeler had this to say: "Thanks to CinemaScope, sets will play a more integrated part in the picture than ever before. Just as on the stage, width, not depth, will represent the typical setup."

The sound implications of CinemaScope are as important as the visual ones, believes Lorin Grignon, 20th's sound engineer, who worked closely with Sol Halprin, ASC, and other studio engineers in perfecting the system. "In bringing stereophonic sound to the screen," said Grignon, "the illusion of reality will be conveyed to a degree never before realized."

Editors will be able to deliver smoother pictures with CinemaScope because scenes will be longer and there will be fewer cuts and closeups, according to 20th's film editor William Murphy.

It appears that CinemaScope will make special effects photography more important to film production than ever before. Matte shots will be widely used and there is the possibility that such

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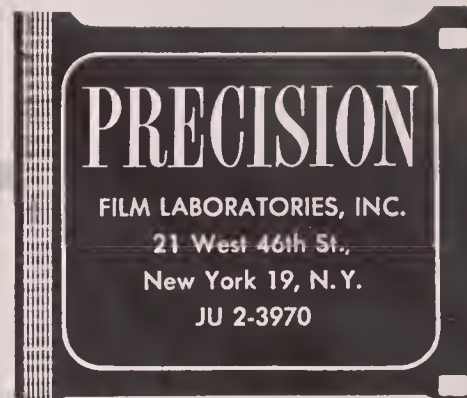
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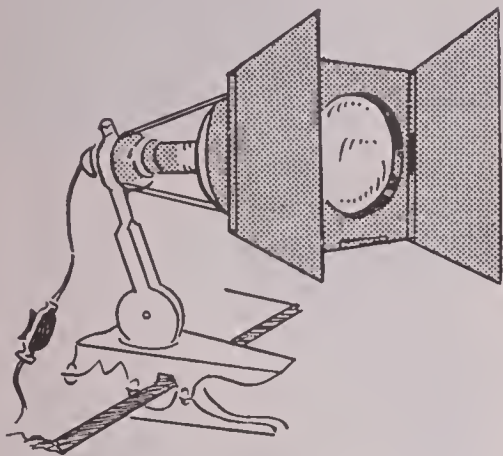
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shots will be the answer to the building of vast panoramic sets where the action must be staged indoors on the sound stage.

Ray Kellogg, who heads the special photographic effects department at 20th Century-Fox said, "With CinemaScope, special effects will bring greater realism than ever before. To me, CinemaScope is more important to the industry today than was the advent of sound in its day."

CinemaScope is ideally suited to spectacle films in which most of the action can be played against huge outdoor panoramic vistas. Twentieth Century-Fox has chosen "The Robe" as its initial production to be made in CinemaScope, which will be photographed under the

direction of Leon Shamroy, ASC. As soon as the key sets are constructed, shooting will get under way, which will be about March 4. Shamroy has worked closely the past month with Sol Halprin, head of Fox's camera and laboratory departments, and the man most instrumental in the development of CinemaScope for the studio. Exhaustive tests have proven the system perfect in every way, and according to a studio executive, all that remains to make CinemaScope an established big-time thing in industry is volume production of CinemaScope lenses. Twentieth Century-Fox, which holds world rights to the system, except for France and its colonies, expects to have between 3,000 and 5,000 sets of CinemaScope lenses available before the end of 1953. **END**

ALL HOLLYWOOD STUDIOS SHOOTING 3-D FILMS

(Continued from Page 110)

Peverell Marley, ASC. A second production, "Burning Arrow," also to be filmed with a Natural Vision camera, is scheduled to follow completion of "House of Wax." Features of the Natural Vision 3-D camera are described elsewhere in this issue.

Warner engineers are also working on studio's own version of a 3-D camera, but are not prepared to make a statement regarding same at this time.

Independents—Among the independent producers, Sol Lesser was the first to undertake a 3-D feature. Employing the stereo cameras of Stereo-Cine Corporation, Lesser started shooting at RKO-Pathé studios early in January. The Stereo-Cine equipment is produced and leased by a corporation headed by Raphael G. Wolff, Hollywood industrial film producer, and Sol Lesser. (See *American Cinematographer* for February, 1953, page 60.)

The Stereo-Cine 3-D camera consists of two 35mm Camerettes mounted opposed on a base engineered by Richardson Camera Company, Burbank. Cameras record images reflected by twin angular mirrors, having micrometer adjustments for varying convergence. Interocular spacing is controlled by turning knobs beneath each camera, which move cameras laterally as required. A single motor drives both cameras, insuring sync at all times. While cameras provide for viewing scene through taking lens during photography, precise alignment of cameras is provided by special loupes which fit in film gate of cameras when magazines are removed. A central Mitchell-type finder affords viewing scene by operator before and during camera operation.

Lippert Productions is scheduled to

enter 3-D film production March 1st with an outdoor feature in black and white. Company will employ a new and hitherto unannounced 3-D motion picture camera, designed and manufactured by Producers Service, Burbank, complete details of which are to be found elsewhere in this issue. Gordon Pollock, ASC. will direct the photography.

Nat Levine, veteran Hollywood producer-distributor has set March 15th as the starting date for his first 3-D feature. He will employ still another independently developed stereo camera—the Dunning 3-D camera engineered by Carroll and Dodge Dunning of Dunning-color Corp., Hollywood.

The Dunning is a single camera having one film magazine carrying two negatives side by side, through a singly integrated camera movement and a fixed interocular spacing of 1.3 inches.

The Dunning system has great portability. Actual weight of camera is around 68 pounds, including motor and magazines, and the blimp weighs only 30. Camera employs no mirrors. A twin-lens optical system operates in connection with an interlock which insures balanced frame by frame exposure of the two negatives. A novel finder automatically combines the two stereo images into a single composite picture.

The Dunning 3-D camera thus becomes the fifth non-studio stereo camera to be developed and made available for feature film production. Others are: Natural Vision, Stereo-Cine, Norling, and Producers Service. Still others will come to light in ensuing months—one we know of from a firm presently turning out 3-D equipment for home movies.

The cameras engineered by the major studios were, in most cases, not the re-

sult of overnight development, despite the sudden general plunge into 3-D film production. Studio engineers have toyed with 3-D intermittently over the years. One example is Paramount, which designed and built a complete 3-D camera years ago and made successful stereoscopic motion pictures with it—only to have the project shelved and the equipment put away in mothballs. The idea was good, but it was just 15 to 20 years early in coming to fruition.

Responsible for developing, testing and refining the 3-D cameras presently in use in the studios are such men as Jerry Rackett and Emil Oster, ASC, at Columbia; Loren Ryder, ASC, Farciot Edouart, ASC, Dr. Charles R. Daily, ASC, and Ferdinand Eich, ASC at Paramount; Mike McGreal and Fred Gage, ASC, at Warner Brothers; Sol Halprin, ASC, at 20th Century-Fox; John Arnold, ASC, at MGM; and Stanley Horsley, ASC, Fred Campbell, and Eugene E. Polito, at Universal-International.

Aiding these men and other studio engineers working on 3-D equipment has been the Motion Picture Research Council, Inc. The council opened its vast library of technical books and test films on stereoscopic motion pictures to the studio men. At the same time, its own research work was accelerated. It put together a series of illustrated lectures which have been given before technical men of the studios as a guide to exploration and development in the new field. Slides were shown illustrating the results that follow in 3-D cinematography under different conditions of convergence, interaxial spacing, composition, etc. Thus, technicians were shown virtually what and what not to do in 3-D cinematography, without waiting to make mistakes in actual production.

Still another contribution of the Council is the design of a handy reference circular "slide-rule" type calculator, which enables 3-D cinematographers to get desired and correct answers to problems of convergence, interaxial distance, etc., in a hurry when shooting on the set or on location. (Similar calculators also have been designed by the Polaroid Corporation, and by Raymond Spottiswoode, British stereo scientist and film producer.)

The third major contribution by the Council has been the setting up and publication of a proposed set of standards to be followed by exhibitors of 3-D films.

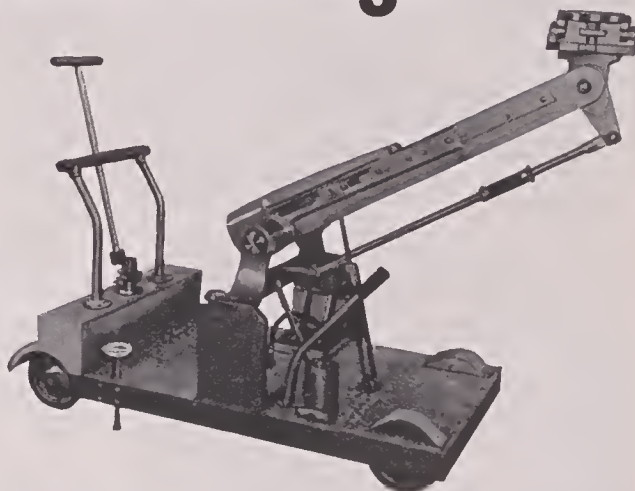
While the photography of 3-D motion pictures involves techniques little different than those followed in conventional film production, the cameraman and his assistants do need a comprehensive knowledge of the theory of stereoscopic photography, and must learn what is necessary in order to achieve satisfactory and distortionless pictures. In this

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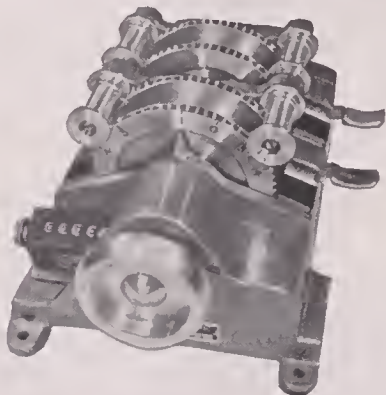
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respect, the calculators of the Research Council and the Polaroid Corp. are of inestimable value.

All of the directors of photography currently photographing 3-D features in Hollywood are seasoned studio cameramen, some with practical experience both in 3-D photography and technical development. Cinematographers credited with the photography of the 3-D features now in production are as follows: Lester White, ASC, Columbia; Bert Glennon, Warner Bros.; Peverell Marley, ASC, Warner Bros.; John Boyle, ASC, Sol Lesser; Karl Struss, ASC, Sol Lesser; Joseph Biroc, ASC, Arch Oboler; Paul Vogel, ASC, MGM; Lucien Ballard, ASC, Fox; Cliff Stine, ASC, Universal-International; and Gordon Pollock, ASC, Lippert Productions.

Three-dimension pictures, of course, will have wide-screen movies, such as Cinerama and CinemaScope, for competition. In the final analysis, it will be the theatre-going public who will decide which innovation or if both are to prevail. Then there is a good chance that wide-screen will successfully be combined with stereoscopic photography. One studio engineer reportedly already

has demonstrated a wide-screen 3-D picture 60 feet in width having comparable wide-screen ratio of height. This, shot on regular 35mm film. This same studio is said to have its own version of the anamorphoscope lens, which it is using in its explorations of wide-screen 3-D films.

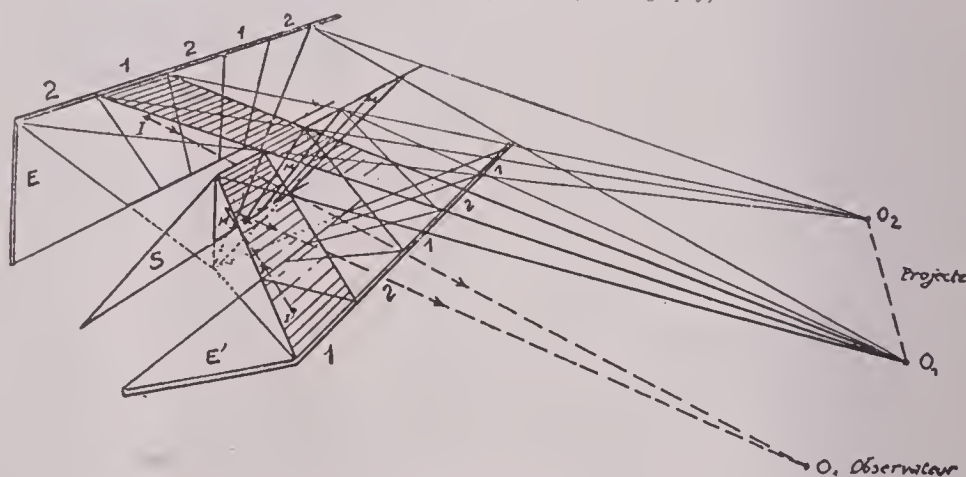
With most studios in Hollywood, activity in 3-D is so tense and in a state of flux, few technical men are able to make definite commitments regarding studio plans or developments. With some studios, plans change hourly; new developments are arrived at and new equipment perfected, all of which constantly changes the picture as a whole.

But in the final analysis, 3-D is basically a photographic problem. It has remained for the cameramen, the heads of camera departments, and other technical men closely related to the photography of films to bring 3-D pictures to fruition in the current and sudden trend of the industry toward stereoscopic picture production. New developments and startling innovations are bound to follow, and it will pay all those interested in this phase of film production to keep close watch on Hollywood in the near future.

END

A New Approach To 3-D Movies Without Viewers

(Reprinted from British Journal of Photography)



French engineer's reflecting-raster for screening 3-D movies may be answer to the Polaroid spectacles problem.

Everyone may take stereoscopic motion pictures and, if particular arrangements of the binocularly disposed lenses and reflectors show considerable inventive ingenuity, the basic arrangements from which they are derived are soundly practical and the result is never in doubt.

When we pass, however, from the camera to the projector—from the taking stage to the receiving end—extremely acute difficulties arise immediately when it comes to a matter of distributing a three-dimensional image (or pairs of images) to the audience, without utilizing individual selective aids such as polarizing filters, color filters, blinking devices, or similar accessories

located in the view-path of each observer.

With one or two exceptions (such as Dodin's concave mirror screen described in American Cinematographer for July, 1952), almost all attempts towards providing twin aspect beams from the projection screen depend on vertical rasters, or rasters of lenticular form (cylinders, rods, facets, and so forth) whereby the two pictures are separately directed or occluded, so that each eye sees only its appropriate view.

We have had fixed rasters, inclined rasters, conically disposed rasters, rasters of wire, of plastic, and, of course, rasters in rotary motion. Nobody has yet proposed to oscillate the audience



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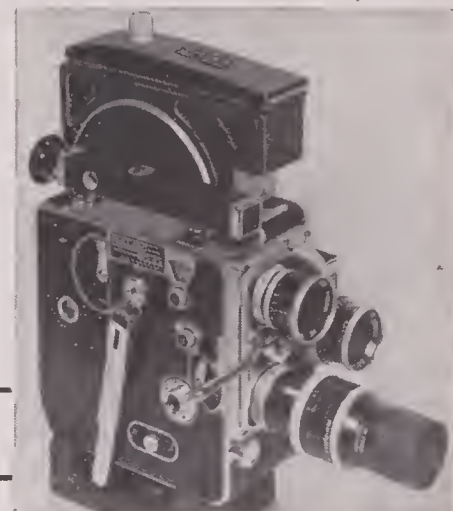
This scientifically engineered unit with 400-foot external magazine, designed by Toledo Cine Engineering exclusively for use with the BOLEX Camera, permits a continuous run of 400 feet (11 minutes at sound speed) and with the aid of a change bag can be unloaded and loaded on location. If desired the 200-foot daylight loading spool may be used in the 400-foot magazine. The 100-foot daylight loading spool can be used in the camera without removing the external magazine. Rolling film plate inside each magazine guarantees against film scuffing. View at left shows unit in position on the BOLEX Camera.

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by way of a change; but even that might follow, if the result appeared promising. This is not intended to be funny; but rather to show the difficulties against which inventors and investigators have struggled to find a 100 per cent successful method.

A new approach to this problem is now offered by a French engineer and B.Sc., Mr. Alexandre Filippi (*Photo-Cinema*, Feb., 1952). In this Filippi procedure we are back again amongst rasters, but the inventor proposes certain novel features, including a reflecting raster. An important factor in this new arrangement would be lighting efficiency. Not only the inconvenience of polarized spectacles but also their wastage of light would be eliminated. Likewise the inevitable light loss where one half of each projected image is suppressed by the masking of the rasters of the alternative aspect.

The Filippi method operates along the following lines:

If we consider a plane grid or raster with black opaque and relatively wide bars (say, of one half inch width) viewed from a distance of 30 feet or even more, we should find that grid unpleasantly evident to the sight. But by forming the rasters into reflectors (making them of plane mirrors, as by

(Continued on Page 139)

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PRACTICAL FILMING TECHNIQUES

(Continued from Page 129)

for each film, though the distant background remains identical. In more complicated matte shots such as ceilings, where fairly close architectural objects at many planes are required, the "foreground miniature" technique may be followed. Miniature settings will require that the interocular be less than normal.

To assist cinematographers in arriving at the correct interocular distance for photographing a given miniature set, the following formula has been established:

$$S = \frac{2\frac{1}{2} \quad D^*}{D}$$

S is the separation between the lenses in making the stereoscopic pair. D is the visual distance to which the object is apparently to be brought, and D* is the actual distance of the object.

The following table shows how far the interocular of the lenses must be separated for conditions of miniature photography (or inserts, etc.) to give the stereoscopic effect. The first column represents *in feet*, the distance from the camera to the object being photographed. The top row shows the spacing of the lenses, *in inches*, necessary to place the object visually for the stereoscopic effect desired:

Interocular:	1"	1½"	2"	2½"	3"
Distance					
100	250	166.6	125	100	83.3
75	187.5	125	93.7	75	62.3
50	125	83.3	62.5	50	41.6
25	62.5	41.6	31.7	25	20.8
10	25	16.6	12.5	10	8.3

For example: to photograph a miniature ship that is 50 feet from the lens so that it will appear to be 125 feet away, the interocular of the lenses must be only one-inch apart. Likewise a separation of 1½ inches will give the apparent distance of 83.3 feet, etc. Separating the lenses greater than normal will bring distant objects apparently closer; that is, an object 100 feet away at the normal separation of 2½ inches, will appear to be only 83.3 feet away if the interocular is 3 inches; 62.5 feet at four inches, etc. This adjustment may be helpful when telephoto shots are required.

The above shows how important is the proper spacing of 3-D lenses for special effects as well as for normal three-dimension reproduction. Those cameras which permit of only excess separation cannot but produce abnormal and distorted stereoscopic pictures. Much of the objection to 3-D films that is now blamed on the viewing glasses actually is not due to the glasses, but to error in filming in the first instance.

Now that three-dimensional films apparently are here to stay, it behoves our camera manufacturers to make available double-film cameras having adjustments for convergence and lens-separation, so that the problems of producing stereo films may be technically improved. All that can be done for the present is to use make-shift, double-camera equipment.

I have indicated that eventually Polaroid glasses will improve from the present give-away cardboard affairs to better types with broader, more comfortable vision. It is also to be hoped that the conventional theatre screen will assume larger proportions for 3-D, for the stereoscopic effect is improved as the screen approaches the more normal scope of vision. Today we are witnessing a gradual freeing of the old concept that the screen must be surrounded with a black velvet border hung in a black hole. This has long been responsible for color films appearing more garish than they really are, and on the whole such screens produce an unnatural intensified effect. With the current trend toward wide screens, part of the realistic effects of the latter can be applied here as well, and we will diminish the unnatural illusion of looking through a small window.

Because the field of vision of normal eyesight greatly exceeds the proportions of the usual movie screen, there is a trend to present a wide screen picture that more naturally approaches human vision. The great success of Cinerama is due to what is known as "surround." That is, the spectator is surrounded with a huge picture. While the center portion may contain the principal objects of interest, still the viewer is free to scan the side areas and thus gain a truer conception of his surroundings. Combined with stereophonic sound, the effect is truly astounding and unquestionably is an emotional thrill. The mechanical problems and very expensive installation costs of Cinerama may retard its rapid application in our theatres. Meantime, inventors have been quick to produce another excellent system that produces much of the same effect with very little expense and alterations of the theatre. I refer to the device now known as CinemaScope, which is described elsewhere in this issue. In practice a regular 35mm camera is fitted with a concave compression lens over the standard lens. This extra lens compresses the image in a lateral dimension only, the height not being altered. The projector is fitted with a de-compression lens and the picture is thus expanded to normal proportions again. Using a very wide screen to obtain the "surround effect," a picture is produced by a combination of the extra lens and a wider angle projection lens that fills the screen with picture. As only one camera and one

projector are involved, there is a minimum of mechanical unsteadiness and no distortion whatever. As stereophonic sound is also used with this method, the sound tracks are on a separate film, permitting the camera and projector to utilize the full film aperture, which at present is shared with the sound track.

While this method makes no claim to being a true 3-dimensional picture system, a certain roundness is obtained due to the size and curvature of the screen, and an illusion of reality is created by the stereophonic sound system. At any rate a new dimension in movies is brought to audiences and it may capture their interest for some years to come.

The CinemaScope films made so far indicate that no great change of filming techniques are to be encountered. Boom, traveling and panoramic shots present no problem mechanically. These will have to be much smoother than in the past because the new, huge dimensions exaggerate such lateral movement due to the wider field. Tilting up or down produces no distortion. Pan shots will be less used for it will be more effective to see and hear the characters move across the screen than to pan with them and thus keep the sound emanating from the center sound speaker. Because of the vastness of the picture, great detail is seen, so it will be unnecessary to make individual closeups to put over facial expression. Two-shots and even four-shots are much more effective in CinemaScope, for the composition is better balanced and the sound sources behind the screen are used to best advantage.

It does not necessarily follow that all sets for CinemaScope will have to be larger with this new screen proportion. True, we will encompass more of the set but instead of panning the actors across, we will allow them to cross the screen and perhaps move in to medium and closer shots, as the action requires. Likewise the sets do not have to be higher than at present. This proportion lends itself to new and interesting compositions, and foreground objects will be utilized for depth illusion.

All the new methods of 3-D and wide-screen movies currently being developed promise a re-vitalization of the motion picture industry. Judging from past experience, audiences will again be attracted to the theatres to participate in the new thrills and novel ways of story telling that await them.

Here again is another example of the engineer and cinematographer leading the motion picture industry to new horizons. The artistic and emotional stimuli that can be conveyed by the director of photography in these new mediums is a challenge that will not be found wanting.

END

3-D MOVIES WITHOUT VIEWERS

(Continued from Page 137)

suitably removing intervening bands of silver from an ordinary mirror, or by utilizing polished metal strips on a flat mounting) then we have a raster system without black separating bars and one which will also reflect those portions of the beam which are incident on it. Such a reflecting raster is shown at **S** in the diagram.

Rays which were absorbed and became a total loss—geometrically and physically—with the black grid, are now reflected and can be utilized to form the other aspect of the picture on a second screen, **E'**, arranged symmetrically with regard to the first, background screen **E**.

Given the two picture aspects as projected from positions **O₁** and **O₂**, the viewer at **O** perceives, (1) through the gaps in the reflecting raster **S** the picture strips on the back screen **E** and (2) through the reflectors, the strips of pictures received on the second screen **E'**. These strips of the second aspect are exactly those which were absent from the first view and thus a complete view of both aspects is secured.

In effect, the viewer perceives the back screen directly and superposed on it the virtual image of the second screen **E'**. Certain residual imperfections remain to be eliminated and this will be developed later. At this stage it may be useful to observe that the provision of a grid or raster which combines the functions of an occluding means (hiding the unwanted picture aspect) with the active function (reflecting the alternative picture aspect) has the result that a more uniformly illuminated surface is presented to the viewer; whereas in a simple, non-reflecting raster system one half of each image is absorbed and contributes nothing to the overall illumination.

Furthermore, and this is possibly another advantage which follows from the preceding effect, with evenly illuminated rasters filling the whole field of view, the actual widths of the bars may be greater than where the aspects are discontinuous with intervening black bars, without their presence becoming noticeably detrimental to viewing comfort. **END**

HOLLYWOOD BULLETIN BOARD

(Continued from Page 102)

PAUL VOGEL, ASC, who worked with John Arnold, ASC, in making exhaustive tests of MGM's new 3-D camera, was assigned to shoot studio's initial stereo feature, "Arena" in AnscoColor.

INADVERTENTLY we omitted the "ASC" after the name of Joseph Ruttenberg when listing him in this column last month as one of the directors of photography voted a candidate for nomination for an Academy Award. This is just to let readers know that Joe still is a member of the ASC—in fact is a Member of the Board.

IN THE SAME ISSUE Sam Leavitt's name appears as "Levinson"—for which we apologize. Gremlins we got! Sam photographed "The Thief," contender for an Award for black-and-white photography.



OLLE COMSTEDT, ASC, (l) who directed photography of "Chuck Hansen—One Guy," for D.P.M. Prod., N. Y., discusses script with one of cast and director **Maurice T. Groen** (r). Production aims to promote anti-discrimination in industry employment.



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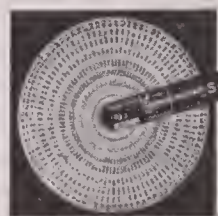
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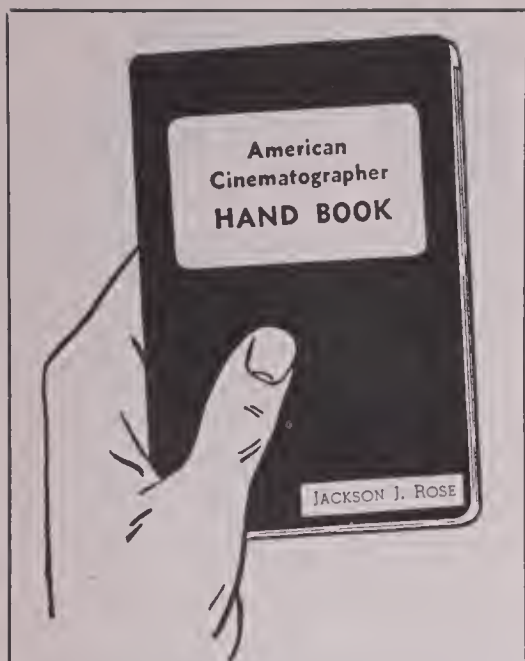
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3-Dimension Optical Effects

By GEORGE BURTT

NATURAL VISION Corporation's first 3-D feature picture is deservedly hailed as a pioneering venture into the new realm of 3-dimensional motion pictures.

Solving successfully the many problems involved in linking two cameras to shoot not-quite-identical films of the same scene so as to give the stereoscopic 3-D effect when projected, reflects tremendous credit on the technical people behind Natural Vision, the developer of the Polaroid 3-D process.

However, not all the problems connected with bringing this first feature to the screen were solved in the camera and projector systems. The lab and optical effects people did a good bit of the pioneering too.

About 3000 feet of the eight-reeler required effects of one kind or another—actually, 6000 feet, since the second camera doubled the footage. But complicating factors multiplied the amount of film stock required astronomically, as Cinema Research Corporation, who were given the optical effects contract, soon discovered. And to top it off, a time limit of 2½ weeks was set for completion of all effects.

Briefly, this is the problem Cinema Research and Consolidated (who did the lab work) were faced with:

The most obvious problem—that of keeping the two original negatives synchronized frame for frame—was solved

by a careful coding system.

But the filming was done on Ansco Color stock. Thus in order to arrive at the final duplicate negatives embodying the optical effects it was necessary first to make separation master positives. A scrupulous watch had to be kept on all three positives for the left-hand camera and the right-hand camera simultaneously to make certain gamma contrasts were maintained at the specified levels.

When the six separation master positives were recombined to give the two dupe negatives required, further complications arose. Constant care was exercised to keep the positives in register, with a perfect match between the two resulting negatives. In addition, fades, dissolves, optical zooms and other effects had to match perfectly—involving the three positives for each dupe negative, or a total of six.

Though only 3000 feet was involved, in order to process it about 18,000 feet had to be handled and kept in balance and in sync frame for frame.

Cinema Research was able to salvage some scenes where right-hand and left-hand scenes did not match perfectly in the original negatives. By first registering both scenes, then optically printing only the areas of the negative common to both, a satisfactory solution was reached and re-shooting avoided. **END**

WHAT'S NEW IN EQUIPMENT, ACCESSORIES

(Continued from Page 96)

ers; mount for camera and motor; off-on switch; 12-ft. of HD cable; and heavy-duty fiber carrying case.

Addition of external magazine permits use of 100- or 200-ft. rolls of film, as well as the full 400-ft. rolls.

Literature is available. Please refer to *American Cinematographer* in your request.

3-D Magnasync Sound—Magnasync, P.O. Box 707, No. Hollywood, Calif., announces a 3-channel stereophonic sound system which consists of master recorder with three master recorder-amplifiers and interlocked tandem mixers. Theatre playback system has identical film transport and matched-head system with pre-amplifiers, and provides facilities for interlocking with theatre projection equipment.

Further information may be obtained by writing the manufacturer and referring to *American Cinematographer*.

Film Cleaner—A ten-day free trial of the Ecco Speedrol film cleaner is offered by the manufacturer, Electro-Chemical Products Corp., 60 Franklin St., East Orange, N. J. Device permits cleaning film static-free as you inspect it when set up in the line of film travel between two rewinds. At same time film is conditioned for longer life. Some advantages claimed for system are as follows: stops dirt attraction by static; eliminates waxing; reduces surface friction; conditions green prints; uses no carbon tet; treatment cannot be seen or felt.

For more complete information, write manufacturer, mentioning *American Cinematographer*.

Hallen Stereo-sound—Hallen Corp., 3503 West Olive, Burbank, announces that all model Hallen magnetic recorders are adaptable to either binaural or stereophonic sound—the 16mm and 17½mm recorders for binaural, and the 35mm

(Continued on Page 142)

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WHAT'S NEW IN EQUIPMENT, ACCESSORIES

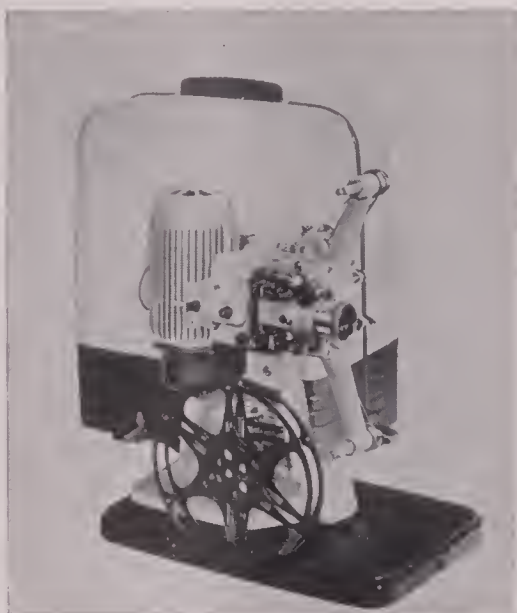
(Continued from Page 140)

for stereophonic 3-track. Conversion is effected simply by adding necessary amplification and making a minor change in the recorder-playback, according to the company.

Please mention *American Cinematographer* when requesting further details.

New 16mm Projector — Bell & Howell Company, Chicago, announces a new 16mm silent projector priced at \$199.95. Modern styling includes a two-tone grey plastic case which slips over projector and latches to projector platform.

The new model (No. 273) is said to give a brighter screen image with a



750-w lamp than other machines, which is accomplished by a straight-line optical system and a new type lamp having a more compact filament. Rewinding is accomplished without switching reels. Film capacity is 400 feet.

Company also announces improvement of its Diplomat 16mm projector to include the new style plastic carrying case at no additional cost.

Titles In 3-D — Ray Mercer & Company, 4241 Normal Ave., Hollywood 29, Calif., are now turning out three-dimension titles to meet the needs of the many film producers making films in the new 3-D medium. Company is oldest established independent special effects and title laboratory on the west coast.

Midget Exposure Meter — Alfa Photo Corp., 303 West 42nd St., New York 36, N. Y., is U.S. distributor of the Actino C Meter, said to be the smallest photo-cell exposure meter made: weight,



2 1/2 oz; size 5/8" X 1" X 1 1/2". Meter is said to be extremely accurate under all light conditions; gives readings for shutter speeds from 4 seconds to 1/1000 sec., and provides for use with ASA film ratings from 6 to 400.

Photo Lamps — Mayfair Manufacturing Co., 89-93 Grand St., Brooklyn 11, N. Y., offers a convenient lighting unit for indoor movie making called the Extendolite, a folding 4-lamp bracket which attaches to camera or camera-and-tripod.

An important feature is the handy carrying case pictured here which permits storage or carrying of unit fitted with photo-lamps, ready for instant use.

Rotary dimmer switch provides 3 different light levels, assuring longer lamp life. List price of \$12.95 includes dial



calculator for indoor exposures. Descriptive literature on complete line is available. Please mention *American Cinematographer*.

"Light housekeeping . . . a necessity"

Obvious to everyone may be the fact that not enough light is getting to the screen; or that the sound system is not functioning properly.

The reasons, however, may be varied—equipment failure, inadequate house-keeping, or a drop in power output. Aid in this type of trouble-shooting may be obtained from the Eastman Technical Service for Motion Picture Film which Kodak maintains at strategic centers to cooperate with producers, processors, and exchanges and exhibitors.

Address:

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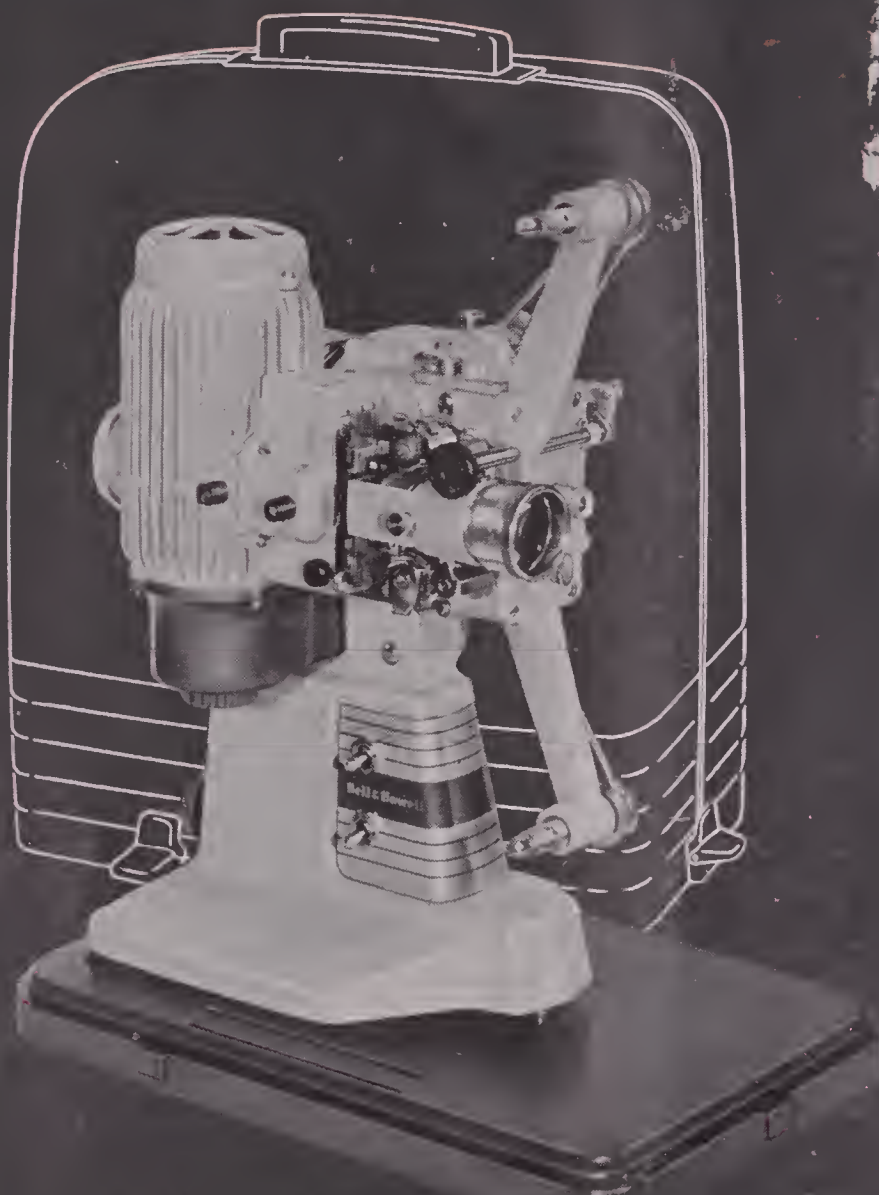
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AMERICAN

APRIL • 1953

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

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In This Issue . . .

1952 ACADEMY AWARDS

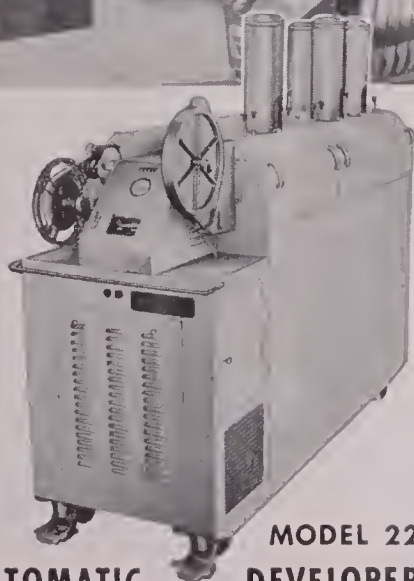
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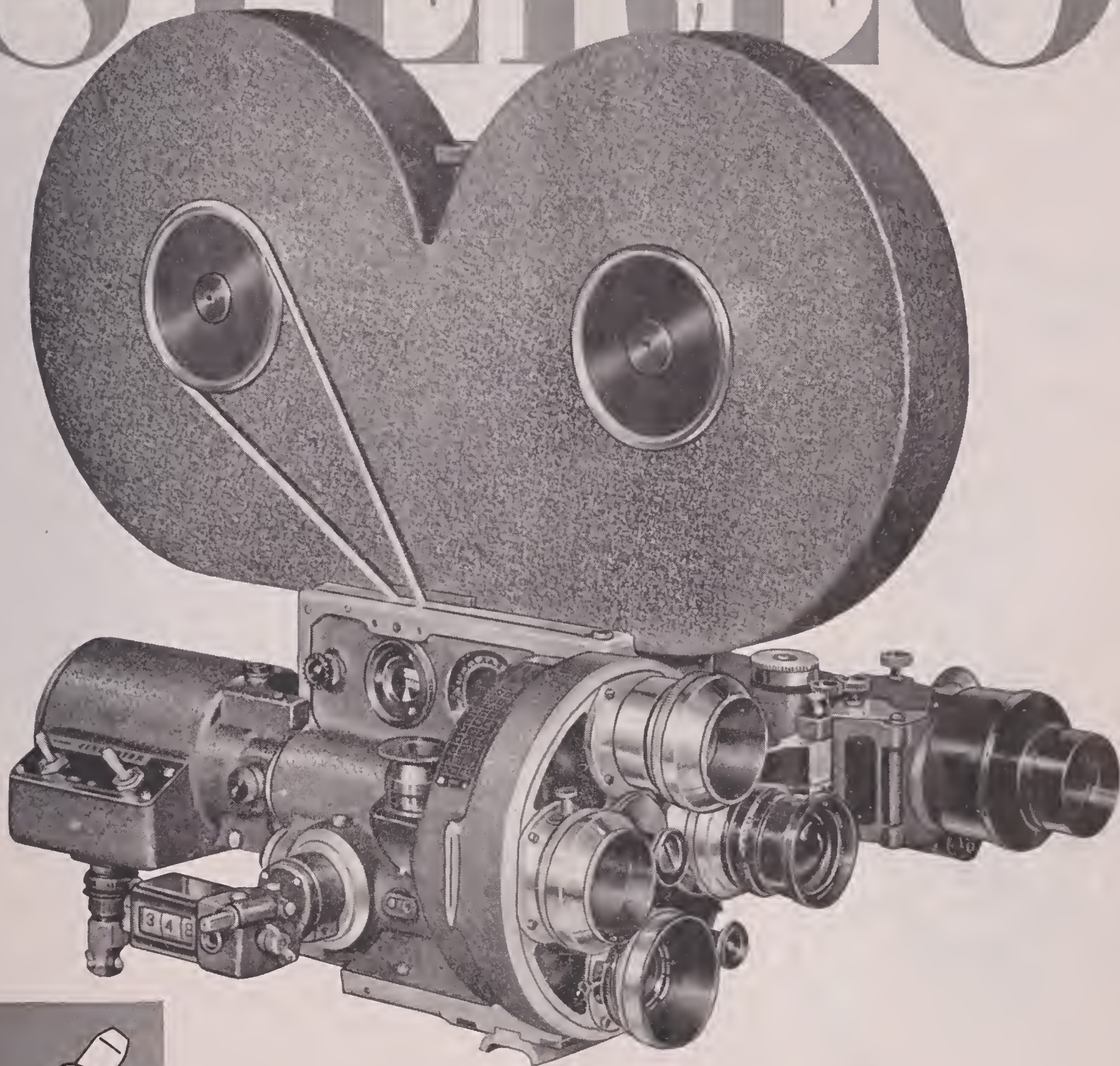
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PUBLICATION OF AMERICAN SOCIETY OF CINEMATOGRAPHERS

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APRIL • 1953

NO. 4

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ON THE COVER

NICK MISURACA, ASC, stands by to start his camera while director Fritz Lang rehearses a scene with Anne Baxter for Gottlieb Productions' "The Blue Gardenia."

AMERICAN CINEMATOGRAPHER, established 1920, is published monthly by the A. S. C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif. Entered as second class matter Nov. 18, 1947, at the postoffice at Los Angeles, Calif., under act of March 3, 1879. SUBSCRIPTIONS: United States and Pan-American Union, \$4.00 per year; Canada, \$4.00 per year; Foreign, \$4.00. Single copies, 25 cents; back numbers, 40 cents; foreign single copies, 45 cents; back numbers, 40 cents. Advertising rates on application. Copyright 1953 by A. S. C. Agency, Inc.



With great pride and deep gratitude George Alfred Mitchell acknowledges —

This Honorary Academy Award made by the Academy of Motion Picture Arts and Sciences at its 25th annual presentations.

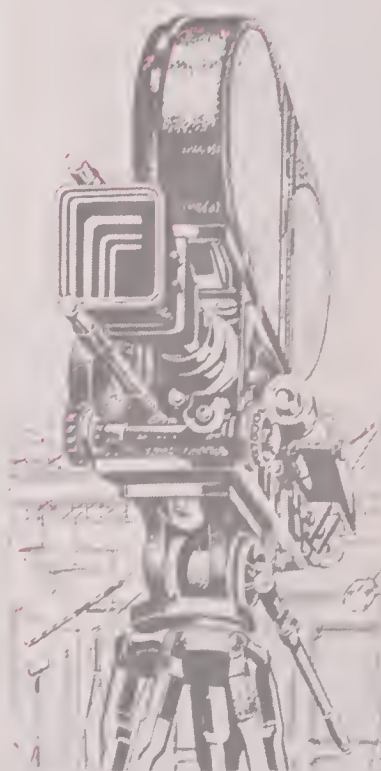
It is traditional of Mitchell Cameras that, in addition to filming the world's greatest films, they are to be found wherever new and exacting techniques of motion picture photography are being successfully made.

"The Academy votes...to George Alfred Mitchell"

At the 25th annual Academy Awards Presentation, Charles Brackett, President of the Academy of Motion Picture Arts and Sciences, made this "Oscar" award in recognition of special contributions made throughout the past 25 years:

"Last night the Board of Governors drew up the following citation:

"For the design, development, and manufacture of the motion picture camera which bears his name; for the introduction of equipment which stampeded the artistic progress of films, and for his continued and dominant presence in the field of cinematography . . . the Academy votes an Honorary Award to George Alfred Mitchell."



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Hollywood Bulletin Board



READY FOR ANY 3-D SITUATION is John Boyle, ASC, who is currently directing the photography of Sol Lesser's "3-D Follies." Boyle is shown with his old-time stereo camera, a Stereo-Realist, and Stereo-Cine's 3-D camera used on the Lesser production.

JOHN BOYLE, ASC, who has been shooting the second and third episodes of Sol Lesser's "3-D Follies," using Stereo-Cine camera equipment, will direct the photography of the Marciano-Walcott world championship bout in Chicago April 10th for Theatre Network TV Corp. of New York. Boyle will have under his supervision three of Stereo-Cine's 3-D cameras, one regular Mitchell, and a single-system sound camera.

JOSEPH WALKER, ASC, whose name has been missing on production lists recently has been engaged in important optical research and development for the Radio Corporation of America. Walker, who directed the photography of such important Columbia productions as "The Jolson Story," "Born Yesterday," "Affair In Trinidad," and "The Marrying Kind," is almost as well known for his optical developments as for his cinematography. He developed a zoom lens for television cameras which later was acquired by RCA; it is widely used in major TV studios.

CHARLES ROSHER, ASC, returned from his island ranch in Jamaica last month, to photograph another picture at MGM—reportedly the studio's first wide-screen production.

HAL MOHR, ASC, served as camera consultant for the Academy Awards presentation ceremony last month.

FILMDOM'S FAMOUS FIVES, one of two national polls conducted annually by Film Daily, motion picture trade paper, names the following five directors of photography as the top cameramen for 1952: Winton Hoch, ASC, for "The Quiet Man"; George Barnes, ASC, for "The Greatest Show On Earth"; Claude Renoir, for "The River"; Floyd Crosby, ASC, for "High Noon"; and Frederick A. Young, ASC, BSC, for "Ivanho."

A SPECIAL SCREENING of CinemaScope was given for members of the American Society of Cinematographers March 23rd at 20th Century-Fox Western Avenue studios. Sol Halprin, ASC, studio's executive director of photography and one of the men responsible for development of the new wide screen system, chairmanned the meet. He explained the ramifications of the new system which Fox henceforth will utilize on all productions. Demonstration consisted of test footage as well as footage from current productions, including "How To Marry A Millionaire," and "The Robe," shot by Leon Shamroy, ASC. Joseph MacDonald, ASC, and Arthur Arling, ASC.

UNDECIDED as to which of the new methods will survive, 3-D or wide-screen, nearly all the other major studios are doing research and experiment on some form of wide screen process. Robert Burks, ASC, reportedly has been making tests with a new wide-screen lens developed by Warner Brothers, while John Arnold and his associates reportedly have a wide-screen lens which MGM will use in conjunction with its 3-D process to produce wide-screen three-dimensional films. A similar system is said to be in an advanced stage of development by Paramount Studios.

LEON SHAMROY, ASC, who is directing the photography of 20th Century-Fox's initial CinemaScope production, "The Robe," has authored an article on the CinemaScope process for "Films In Review," publication of the National Board of Review.

GIL WARRENTON, ASC, has been photographing the "Joe McDoaks" series of comedy short subjects at Warner Brothers. **END**

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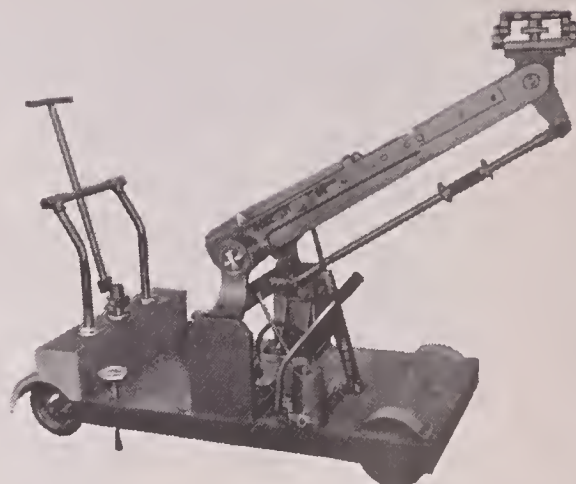
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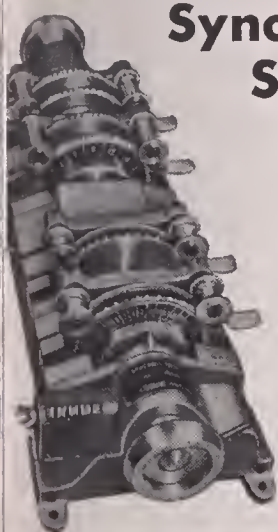
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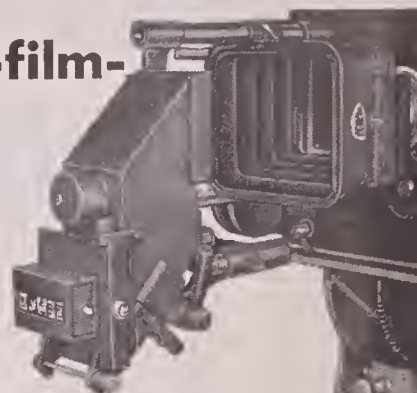
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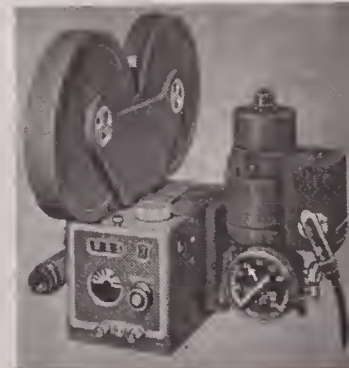
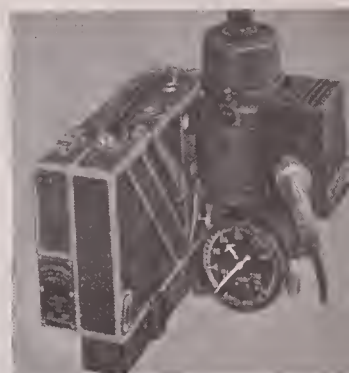
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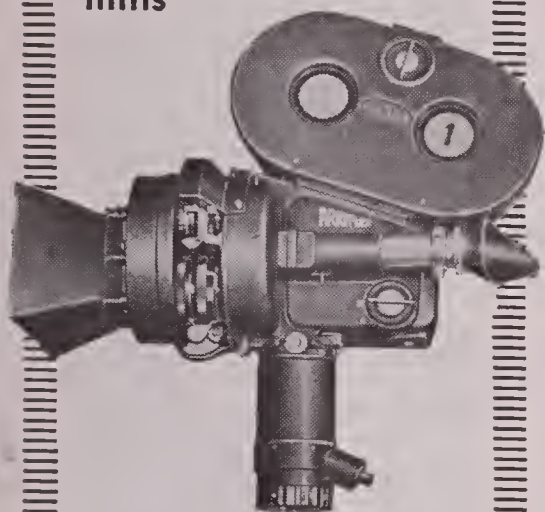


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Hydraulic Camera Elevator—A versatile new hydraulic "elevator" which can be mounted on any light truck or jeep chassis is announced by Hamlin-Klock Corp., Pasadena, Calif. One important



application is in the construction of mobile camera cars for motion pictures and television. The platform is 42"x62" and is supplied with fixed or collapsible guard rails. Its hydraulic pump (driven by power takeoff) will raise elevator with a crew and load up to 2,000 lbs. to a maximum height of 15 feet. Models having a maximum range of 30 feet are available on special order.

A safety feature provides that in case of a rupture of hydraulic lines, the lift will descend at a slow, controlled rate; in case of a power failure, a convenient by-pass valve at the base permits lowering the lift. All regular lift controls are in the driver's compartment.

Further information and prices may be obtained by writing the manufacturer and mentioning *American Cinematographer*.

Film Processor Parts—Metal Masters, division of Wall Laboratories, 5599 Uni-

versity Ave., San Diego, Calif., offer a complete range of parts and equipment for the chemical and photographic industries, with special attention given to parts necessary for building film developing and processing equipment. With Metal Masters' parts it is possible for one to construct a complete film developing machine and companion equipment. A comprehensive illustrated brochure is available by writing the company and mentioning *American Cinematographer*.

Kadisch Mike Boom—Kadisch Camera and Sound Engineering Co., 500 West 52nd St., New York 19, N. Y., announces a new light-weight, portable microphone boom for location and studio work. Rigidly constructed and precision engineered, the model CEC-13 boom telescopes from 7 to 13 feet. Boom is strutted to support the heaviest mikes. External directional mike-control is at the rear and affords a full 360° noiseless turn of the instrument. The sturdy 5-foot stand has three 4-inch rubber-tired wheels, and it can be elevated to a height of 10 ft. Total weight, including balance-weight, is 40 lbs.

Please mention *American Cinematographer* when requesting further information.

Magnetic Heads—Stancil-Hoffman Corp., 921 No. Highland Ave., Hollywood 38, Calif., announces a new line of magnetic recording and reproducing heads for tape and film. The standard heads record a track .200 inches in width. The record-reproduce head has 1000-turn



coil and gap width of approximately .0005 in. Heads for recording only are available with lower impedance, permitting easier matching for high bias frequencies. Gap width is .0007 inches, providing best tape magnetization.

(Continued on Page 154)



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The ideal 35mm movie camera for TV Newsreel, Industrial, Travel and Scientific Motion Picture Photography.

FAMOUS ARRIFLEX FEATURES:

- Reflex focusing through taking lens, even when camera is running.
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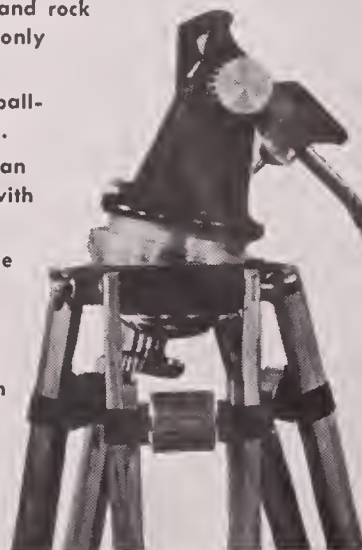
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WHAT'S NEW?

(Continued from Page 152)

Heads for reproduction only have gap width of approximately .0003 inches on a 1000-turn coil.

Further information may be had by writing the manufacturer and referring to *American Cinematographer* magazine.

"Searching" Sound Head — Moviola Mfg. Co., 1451 No. Gordon St., Hollywood 28, Calif., announces a new "searching" sound track reader for the selective reading of magnetic film tracks on Moviolas. New head, which can be



adapted to any model Moviola, enables film editors to locate exact words in magnetic tracks or pin-point fractions of words or sounds. Full particulars and prices may be had by writing the company direct and mentioning *American Cinematographer*.

New Finder — The Raymond Company, P.O. Box 1253, Burbank, Calif., has been appointed distributors of the German-made Tewe "Motive-Finder" — a precision engineered finder for cameramen and directors. The Tewe features adjustable focal length from 25mm to 125mm; hard-coated lenses; and constant and correct proportions over the entire focal length. Finished in satin black, the Tewe is fitted with flexible chrome neck chain. Price is \$75.00, postpaid in U.S. Illustrated folder may be had by writing the company and mentioning *American Cinematographer*.

Sound Transfer Service — J. A. Maurer, Inc., and Precision Film Labs., New York, now offer a service of transferring sound to and from any two types of recording mediums for producers and users of motion picture films.

NEW

Modulite Model "S" 16mm variable-area sound-on-film recording Galvanometer with "Shutter" Noise Reduction, now available as optional equipment on the Auricon Super 1200" and the Auricon-Pro" Cameras, and the Auricon RT-80 Double-System Recorder.

High-fidelity sound-track with 5 DB noise reduction.

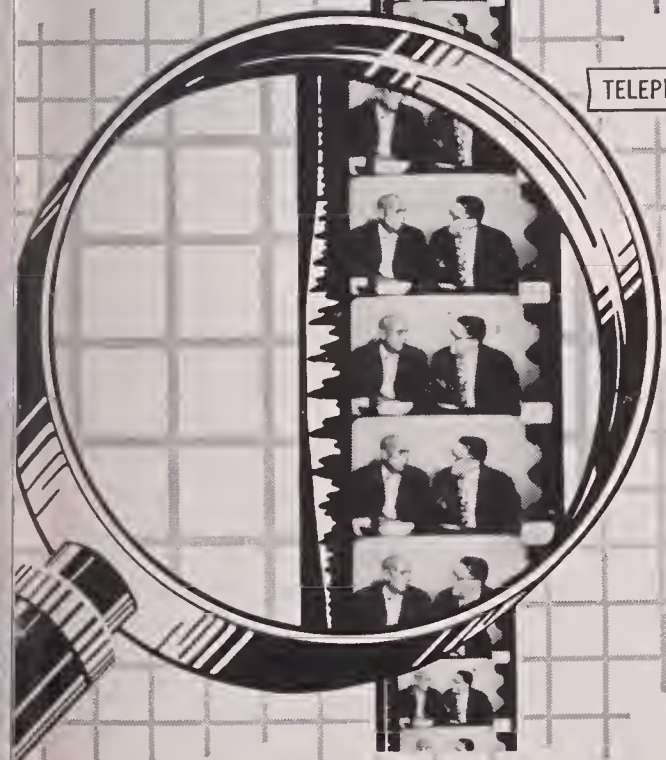
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10 X ENLARGED GROUND-GLASS IMAGE SEEN BY CAMERAMAN'S EYE

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FOR 1" LENS STUDIO WORK, THE AURICON AUTO-PARALLAX FINDER, MODEL EIF-20, IS USED INSTEAD OF THE TELEPHOTO FINDER AS ILLUSTRATED BELOW.

Filming "Return To Paradise" In Samoa

It takes a remote location like Samoa to prove the mettle and resourcefulness of a Hollywood camera crew.

By HILDA BLACK

THERE'S MAGIC in the word "Paradise" that conjurs up thoughts of a leisurely and care-free existence, of an eden-like spot in the South Seas far from the cares of a troubled world. So when Winton Hoch, ASC, and his camera crew embarked for Samoa several months ago to photograph Aspen Pictures' "Return To Paradise," they weren't prepared for the many surprises that awaited them.

Almost as soon as the company set foot on Samoa, tribulations began which were to continue to the end of the production. Of course, almost any production filmed away from the home lot invariably poses problems, and seasoned production crews have come to anticipate them. But the problems were of a unique kind at Samoa. They began when news reached director of photography Hoch that, due to an unexpected shipping strike, the Technicolor camera and equip-

WINTON HOCH, ASC, who directed the color photography of Aspen Pictures' "Return To Paradise" in Samoa, takes a light reading with a Technicolor meter. Hoch, a two-time Academy Award winner, has been nominated for an award again this year.



A LABOR STRIKE delayed shipment of company's Technicolor camera equipment. The little Arriflex camera Winton Hoch brought along saved the day—enabled him to start shooting almost immediately.



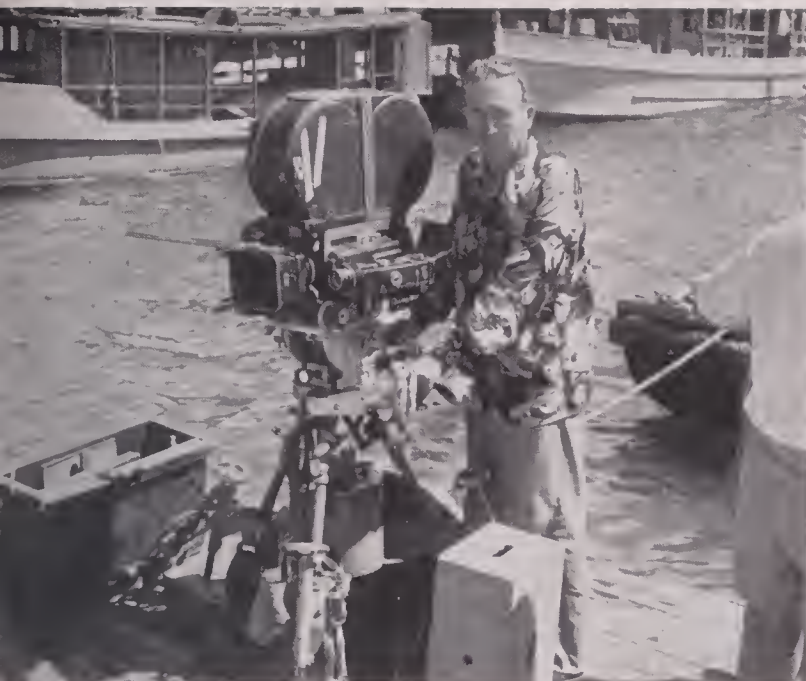
HERE Hoch used carbon arc lamps to supply illumination for a shot made at sunset on a Samoan beach. On the screen the blend of tropical sunlit with artificial light produces a breathtaking pictorial result.

ment which was to follow by boat would be indefinitely delayed. With everything else in readiness to start shooting, the most important thing—the camera—was missing.

Hoch's foresight in tucking a portable Arriflex camera in his luggage saved the day. By loading this camera with Technicolor Monopack, he was able to photograph a great many scenes while waiting for the delayed Technicolor camera to arrive.

The little village of Matautu in the LeFarge area of Samoa had been chosen as the locale for the story. Having insufficient accommodations for the film company's personnel, the natives of the little island saw the movie company move into town in force each morning from neighboring Apia, and leave again each evening.

Of the cast of forty-seven, only four were brought from Hollywood. The remainder were recruited from among native Samoans. Except for Winton Hoch and his assistant, Ed Garvin, the camera operator and second assistant were re-



CINEMATOGRAPHER Winton Hoch lines up Technicolor camera for a shot deck of small launch, which served as an efficient "aqua-dolly" when there were shots to be made at sea or in the lagoons.



SO DENSE was the foliage that booster lights were a "must" for almost every shot made on the island. In foreground group of natives watch "Hollywood at work" while the camera crew prepares to shoot a scene in the background.



RAINS a lot in Samoa but it couldn't be photographed so it looked rain; so the company rigged up pipes and pumped sea water through to produce artificial rain for a sequence of night shots.



REFLECTORS augmented booster lights in providing extra illumination for many scenes. Trouble was, careless natives often dropped them in the ocean with disastrous results.

cruited from Australia. In all, the company included 22 Australian technicians; because these men follow studio methods different from those of Hollywood, there was occasional delay in re-training them to the company's methods.

One of the first problems that had to be met, as Hoch started shooting with the Arriflex, was that of providing reflectors. The studio reflectors were tied up at the strike-bound port along with the camera and lighting equipment.

Lee Hanks, the head grip found a solution to the problem when he chanced to make a purchase at the local general store. Here he observed a number of large crates of cookies—"tea biscuits" they're called in Samoa—wrapped in tropical packing of heavy foil. Hanks induced the store keeper to part with the foil on the crates, at the risk of spoilage of the "biscuits," and from this he provided the much needed reflectors. The sheets of foil were smoothed and tacked to panels of plywood, which served the purpose quite well.

The merchants of Apia, happy over the prosperity the

Hollywood visitors had brought to their tiny village, were ever eager to be helpful. A local butcher solved the company's problem of storing its supply of color film and safeguarding it against the rigors of the tropics. He simply piled the cans of film in his refrigerator along with the sides of beef, and mutton.

The prevailing high humidity, incidentally, was an ever-vexing problem for the camera crew. Said Hoch: "We had to keep a maintenance crew busy all day long polishing and oiling equipment in order to keep it in workable condition." Where mildew was a serious threat to precision parts, such as lenses, these were stored in an improvised "oven" which employed mild heat to eliminate the effects of humidity and moisture.

Head grip Hanks was not without his worries, too. Earlier, he had prepared dolly tracks from lengths of native hardwood; but after they were completed, they were found to be

(Continued on Page 188)



ARCHIE STOUT, ASC, (left) and Winton Hoch, ASC, received dual Oscar awards for best achievement in color cinematography for "The Quiet Man." Actress Teresa Wright made the presentation for the Academy of Motion Picture Arts and Sciences last month in Hollywood.

1952 ACADEMY AWARDS

"The Quiet Man" and "The Bad and the Beautiful"
voted best photographed pictures of the year.

By ARTHUR GAVIN

WHEN A.S.C. MEMBERS Winton Hoch, Robert Surtees and Archie Stout won Academy Awards for achievement in cinematography last month, Hoch's collection of Oscars was increased to three, Surtees' to two, and Archie Stout became an Oscar winner for the first time. The three awards bring the total number of Oscars won by A.S.C. members to 44. The annual awards presentation ceremony was held at the Pantages theatre in Hollywood the evening of March 19.

Presented the Academy's coveted award for achievement in black-and-white cinematography was Robert Surtees, ASC, who directed the camera work on Metro-Goldwyn-Mayer's "The Bad and the Beautiful." Winton Hoch and Archie Stout were awarded Oscars for achievement in color cinematogra-

phy. The two directors of photography shared honors for the fine Technicolor lensing of Argosy Pictures' "The Quiet Man." Stout directed the second unit photography of the production. For him, winning an Oscar was the culmination of a long-sought career goal. "This is something for which I have worked for 25 years," he said following the presentation.

For Winton Hoch, his award this year marks his third for photographic achievement. He received his first Oscar in 1949 for co-photography of "Joan of Arc," an assignment he shared with

the late Joseph Valentine, ASC, and William V. Skall, ASC. The following year he won his second Academy Award for the Technicolor photography of Argosy Pictures' "She Wore A Yellow Ribbon." By winning his third award this year, he takes his place along with Leon Shamroy, ASC, and Arthur Miller, ASC, as one of the three directors of photography to have won three Academy Awards for photography. Incidentally, Hoch also was presented the annual Look Award in February for the photography of "The Quiet Man."

Robert Surtees, holder of several awards for cinematographic achievement, received his first Oscar in 1951 for the Technicolor photography of Metro-Goldwyn-Mayer's "King Solomon's Mines." Besides his two Oscars, Surtees also has won numerous other awards. Prior to receiving an Oscar for "King Solomon's Mines" in 1951, he won the A.S.C. Picture of The Month Award, the Look Award, and the Golden Globe award for the same picture. In 1952 he received his second Golden Globe Award for the photography of MGM's Technicolor production "Quo Vadis," an assignment shared with William Skall, ASC, who won a like award.

Stout, incidentally, becomes the 33rd A.S.C. member to win an Oscar for photography. As a result, his photograph will be hung alongside those of 32 Oscar-winning contemporaries on A.S.C.'s "Wall of Fame" in the Society's Hollywood clubhouse.

"The Bad and the Beautiful," the motion picture that won the 1952 Academy Award for black-and-white cinematography, is a film that combines the art and science of the camera to



FOR "The Bad and the Beautiful," voted best photographed black-and-white production for 1952, Robert Surtees, ASC, was presented an Oscar by Teresa Wright.



TECHNICAL and Scientific Awards for achievements relating to cinematography were bestowed upon Dr. Herbert Kalmus, (L) president of Technicolor, for company's new incandescent color system; to George

Mitchell, ASC, (center) for development of the Mitchell camera; and to Karl Freund, ASC, (R) for creation by Photo Research Corp. of the Spectra Color Temperature Meter.

very best advantage. Essentially a dramatic story, the film was handsomely mounted and featured striking interiors, dramatic action in exterior scenes, and a wealth of stunning feminine wardrobe, not to mention, of course, the highly photogenic cast itself. The story, an enthralling, powerful drama of Hollywood, abounds with tense, forceful situations which depended a great deal upon photographic interpretation and emphasis to transport it to the screen with its full dramatic impact intact. Technically, the photography of this black-and-white production reaches a new high, and it can be truly said that Surtees, whose earlier award-winning work has been in color, exceeds all previous accomplishments.

"The Quiet Man," which won for Winton Hoch and Archie Stout the dual awards for best color photography is unquestionably one of Hollywood's finer color productions. Photographed for the most part in Ireland, Hoch and Stout captured the natural beauty of the country with their Technicolor cameras working under continual adverse light conditions. Throughout the picture may be seen many deft lighting and compositional techniques that were so evident in "She Wore A Yellow Ribbon," Hoch's previous Oscar-winning picture.

Although most of Stout's photographic credits are for black-and-white pictures, his lighting and camera work on interiors for "Quiet Man" demonstrate a talent for color photography far too long obscured. Unquestionably we shall see his credit as director of photography on more color productions hereafter.

As is so often the case in the annual Academy Awards, neither of the award-winners for cinematography won the

"best picture" award. This honor went to Cecil B. DeMille's "The Greatest Show on Earth." However, "The Bad and the Beautiful" received other awards, in addition to that for photography: Best Supporting Actress, Best Screenplay, Best Art Direction (black-and-white) and Best Costume Design (black-and-white). "The Quiet Man" also was honored with the award for Best Direction, which went to John Ford.

While the Academy no longer makes annual awards for achievement in photographic effects, awards are given only when exceptional achievement in this branch of production is voted by Academy members. This year, Metro-Goldwyn-Mayer was cited for Best Special Effects in its Technicolor production, "Plymouth Adventure"—the award going to Arnold Gillespie, head of the department. For this achievement a substantial measure of credit is due Max Fabian, ASC, and Harold Lipstein, ASC, who did the bulk of the special effects photography of the picture.

This year, the Academy bestowed a number of Honorary and Special awards. Several of these were received by men or organizations closely related to the photography of motion pictures. Eastman Kodak Company received a Class I Technical Award for the introduction of Eastman color negative and Eastman color print films. The award was accepted for the company by Emery Huse, ASC, an executive of the company's Hollywood office.

A like award went to Ansco, Division of General Aniline & Film Corp., for the introduction of Ansco Color negative and Ansco Color print film. This award was accepted by Robert Young, ASC, Ansco's west coast representative.

Technicolor Corporation received a Class II Technical Award for an improved method of color motion picture photography under incandescent light. This was accepted by Dr. Herbert Kalmus, president of Technicolor.

Photo Research Corporation, headed by Karl Freund, ASC, was honored with a Class III Technical Award for its contribution to the motion picture industry in creating the Spectra Color Temperature Meter.

One of six Honorary Awards went to George Alfred Mitchell, ASC, former president of Mitchell Camera Company, for the development of the famous camera which bears his name.

Other major Academy Awards for 1952 were as follows:

Best Actor: Gary Cooper, "High Noon," Stanley Kramer-United Artists, photographed by Floyd Crosby, ASC.

Best Actress: Shirley Booth, "Come Back Little Sheba," Hal Wallis-Paramount production, photographed by James Wong Howe, ASC.

Best Supporting Actor: Anthony Quinn, "Viva Zapata!" 20th Century-Fox, photographed by Joe MacDonald, ASC.

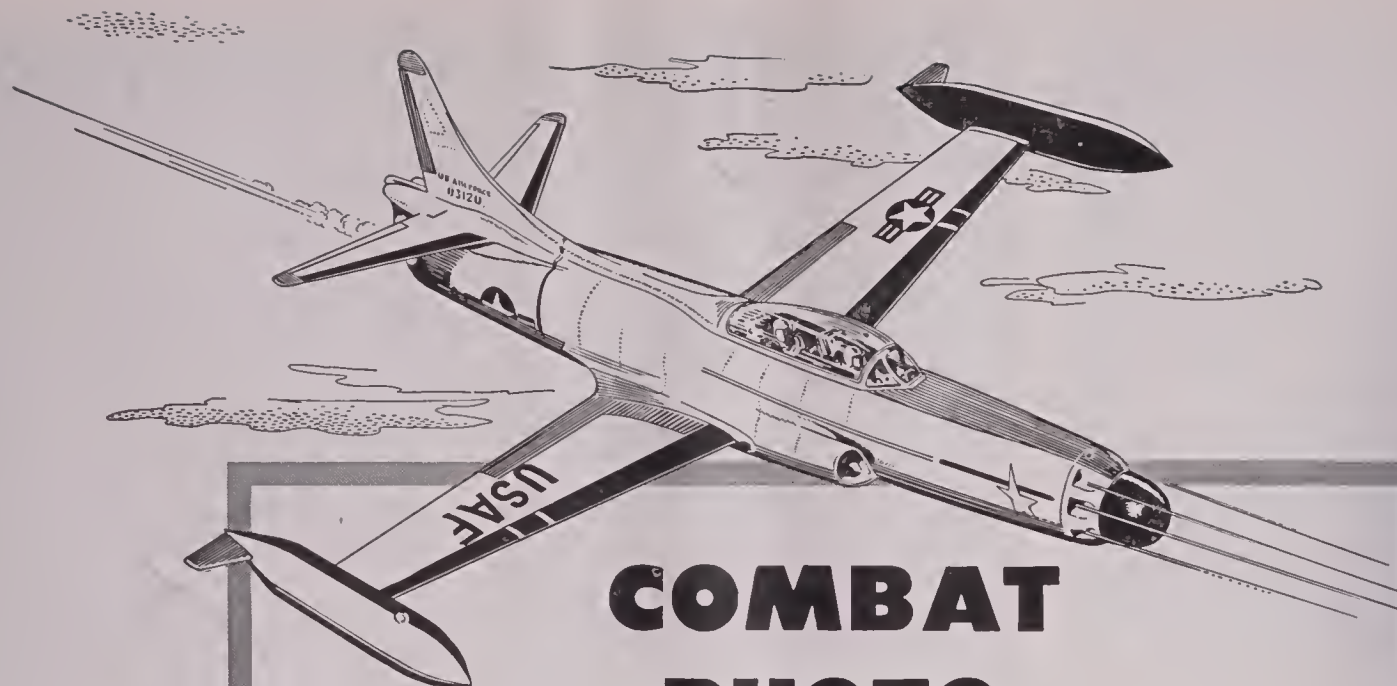
Best Supporting Actress: Gloria Grahame, "The Bad and the Beautiful," MGM, photographed by Robert Surtees, ASC.

Best Direction: John Ford, "The Quiet Man," photographed by Winton Hoch, ASC, and Archie Stout, ASC.

Best Screenplay: Charles Schnee, for "The Bad and The Beautiful."

Best Motion Picture Story: Fred M. Frank, Theo. St. John, and Frank Cavett for "The Greatest Show On Earth," DeMille-Paramount, photographed by

(Continued on Page 176)



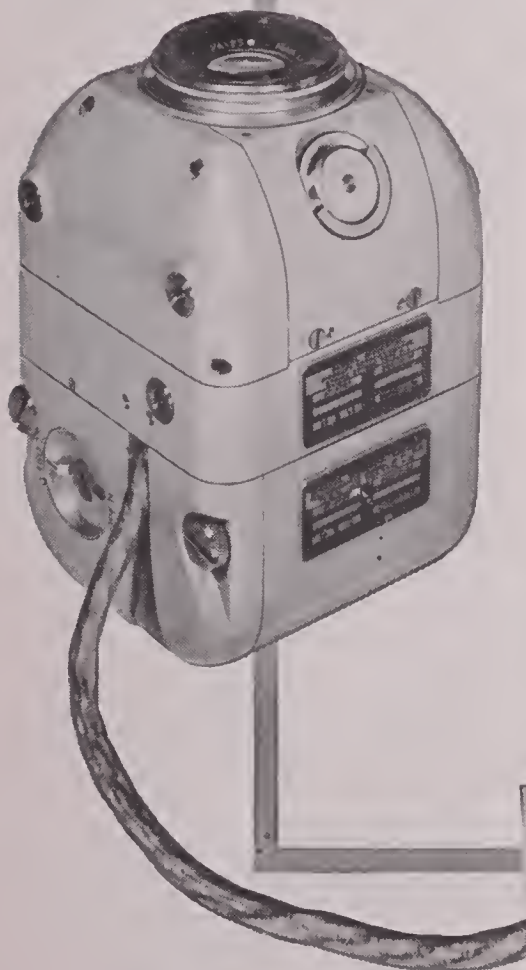
COMBAT PHOTO RECORDS

FROM WORLD'S FASTEST FIGHTERS...

A supersonic jet fighter on a bombing or rocket-strafting mission needs something special in the way of a camera for recording impact and destruction by its weapons. Such a camera is the Maurer P-2 illustrated.

Designed by John A. Maurer, President, developed and now in volume production at the Maurer plant, the Maurer P-2 meets specifications of the Photographic Reconnaissance Laboratory of the Air Research and Development Command—yet is only *one-third the weight* of any previous type camera designed for this function.

Write for detailed information on other high-precision cameras and related photographic equipment.



THE MAURER 16MM., designed specifically for professional use, equipped with precision high-power focusing and view-finder. Standard equipment includes: 235° dissolving shutter, automatic fade control, view finder, sunshade and filter holder, one 400-foot gear-driven film magazine, a 60-cycle 115-volt synchronous motor, one 8-frame handcrank, power cable and a lightweight carrying case.



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maurer means *finer* motion pictures!

THE "BOOM SHOT" derives its name from the camera boom itself: a mobile, counter-weighted crane, embodying at the end of its arm a camera platform capable of being raised or lowered.

The boom shot is not a new technique. It has been used and abused for many years now—and like many other cinematic effects, its value depends largely upon the approach and good taste of the technicians using it.

The boom shot is used (1) to follow action, (2) to capture the full scope of a sweeping subject, (3) to establish a spacial relationship between separate elements of the scene, (4) to focus attention sharply on one part of a wide composition, (5) to help add movement to a basically static situation, and (6) to tie together several separate compositions or set-ups into a single scene.

Let us examine each of these separately:

(1) *To follow action.*—This is the basic and obvious function of all moving camera shots. It assumes that the action of the main subject is of prime importance and that any background which happens to be captured in the scene is a happy dividend. A fairly common application of this shot is to start with a high establishing angle of the situation, boom in to a close shot of a single character, and then follow the action of that character within the basic situation.

(2) *To capture the full scope of a sweeping subject.*—It is in this function that the boom shot really comes into its own. Picture, for example, how difficult it would be to record the action of a film like "The Greatest Show on Earth" without the aid of boom shots. The very immensity of the subject itself cries out for a panoramic visual treatment.

Similarly, the wide, ever-changing tapestry of a historical subject demands a fluid, all-seeing camera perspective. "Quo Vadis," for example, profited greatly from such camera treatment. The



SKILLFULLY executed, a boom shot becomes more than a mere Cook's tour with the camera; it can effectively set the atmosphere for an entire sequence, if not the whole picture.

The Function Of Boom Shots In Feature Film Production

**Boom or crane shots impart a fluid quality
to photography, enhancing the dramatic
values of the script.**

By HERB A. LIGHTMAN

colorful pageantry of this film epic was given full sweep by a camera which could start out as part of a milling crowd, then boom to a majestic height to view objectively the mass action of legions on parade, or a holiday crowd crying for blood in the arena.

"Ivanhoe" is another historical film which made full use of the soaring camera. Here again, the boom shot was made to order for recording the violent action of the jousting bouts, the storming of castles, and the general rough-and-tumble of life in merry old medieval England.

Perhaps the classic example of a boom shot used to lend full sweep to a historical subject is the famous railroad yard sequence in "Gone With The Wind." The scene started out as a simple follow shot, with the camera trained on a character entering the general locale. Then the camera rose high into the air, revealing what seemed like an endless expanse of railroad tracks lined with the bodies of wounded and dying Confederate soldiers. The impact of this striking presentation of the scene made it the outstanding visual moment in a picture filled with outstanding moments.

In films such as these, moving camera shots should be adapted to patterns of action, not vice versa. The happiest result stems from pre-shooting conferences between cameraman and director

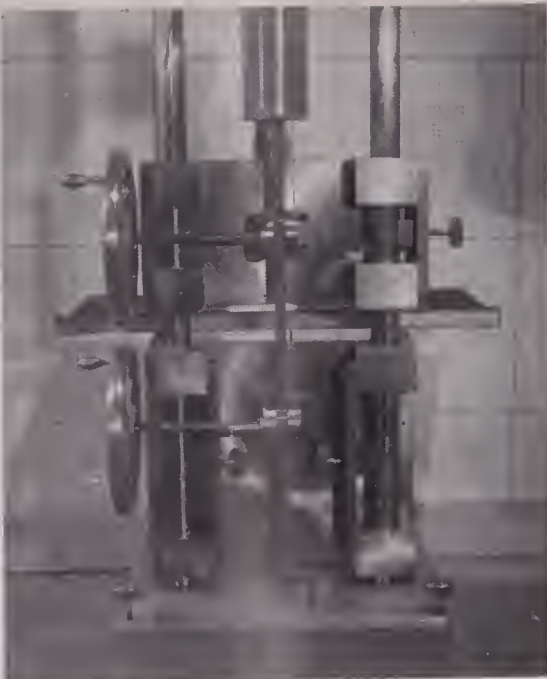
(Continued on Page 183)



TO FOLLOW ACTION is the basic and obvious function of all moving camera shots. A common application of this type boom shot is to start with a high establishing shot, then boom in close to the subject or principal character.



ANIMATION stand which Video Films built to suit company's specific needs for TV spot film production; cost about \$1,500.



REAR view of stand, showing camera and table plates and their respective rack and gear assemblies.

An Animation Stand For TV Film Production

A custom-built animation stand which is ideally suited to needs of average producer of TV film commercials.

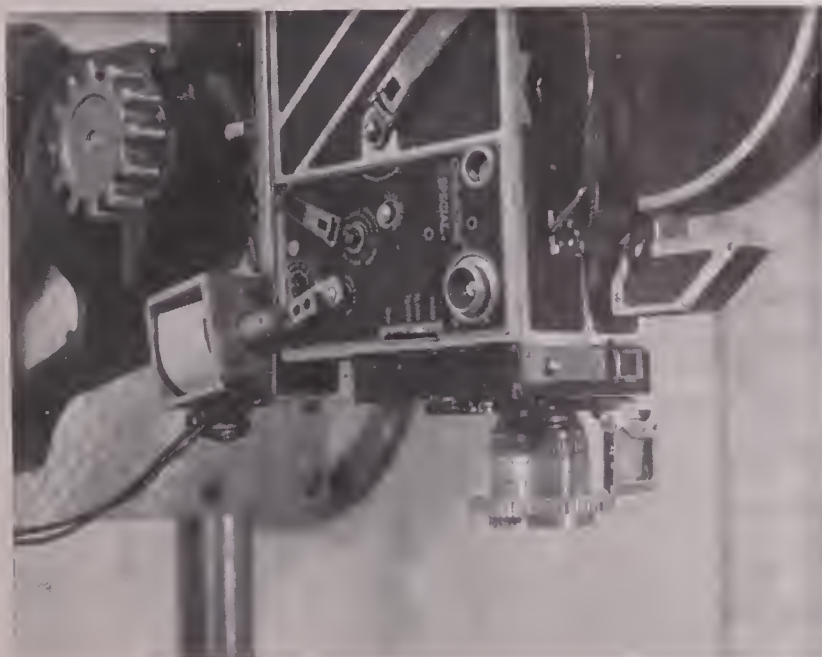
By WILLIAM R. WITHERELL, JR.
Production Manager, Video Films, Detroit

THERE ARE CURRENTLY on the market animation stands that do just about everything in the way of filming animated cartoons except ink the cels. They are wonderful examples of precision machining and there is little doubt that they are well worth the cost. Unfortunately, Video Films, like many film producers of moderate circumstances, is in no position to tie up some \$11,000 in a super deluxe animation camera mount.

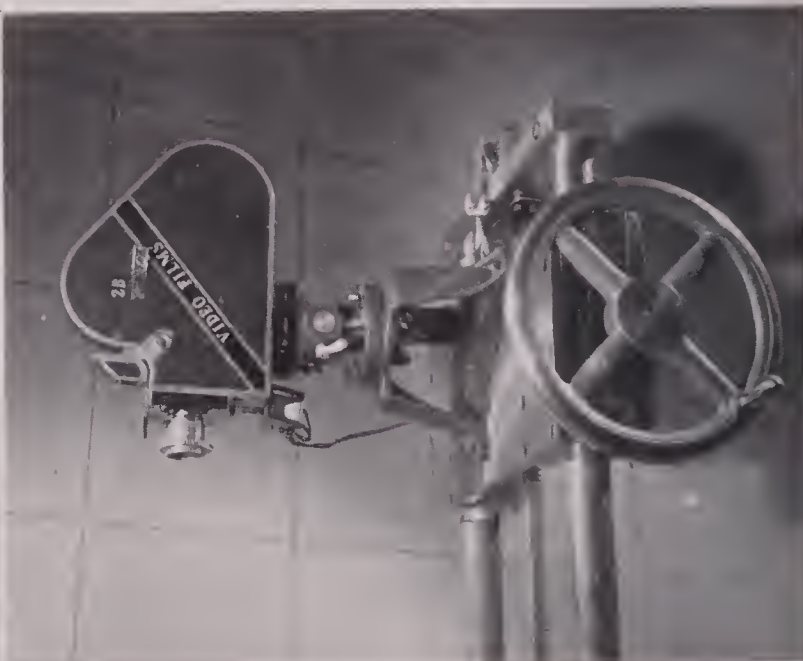
A few months ago, however, we came to the realization that we had to have something better than what we had been using. We foresaw a demand for more and more of all the things that only a good animation stand will provide. So we did what we have always done when we've wanted something we couldn't afford to buy: we designed one to our own specifications and had it built. In the belief that other film producers, educational institutions and industrial photo units will benefit from our experience and find ways to adapt the design of our animation stand to their own needs, here, briefly, are our findings:

To go back to the beginning, our first stand was horizontal. This was nothing more than the camera and Hi-Hat mounted on a square of plywood, which was equipped with three wheels that enabled us to roll it back and forth on two tracks which were hinged to a wall. This arrangement proved very satisfactory for fast zooms on stills and other static artwork. It was especially helpful in dollying in to small product setups for TV commercials, such as bottles and glasses of beer, etc., where the camera must end up focusing on a label. We still use this equipment often.

Encouraged, we undertook to duplicate this apparatus in a vertical position.
(Continued on Page 186)



FOR USE with a Cine Special camera, the application of foot-switch and solenoid to actuate the single-frame release, as pictured here, was found to be an ideal solution to the problem of rapid shooting.



THIS detailed study of the camera mounting plate shows the sleeve bearings on the vertical posts and one of two pulleys on the top bar. Camera plate is moved up or down by turning the hand-wheel.

EASTMAN

PROFESSIONAL

MOTION PICTURE

FILMS

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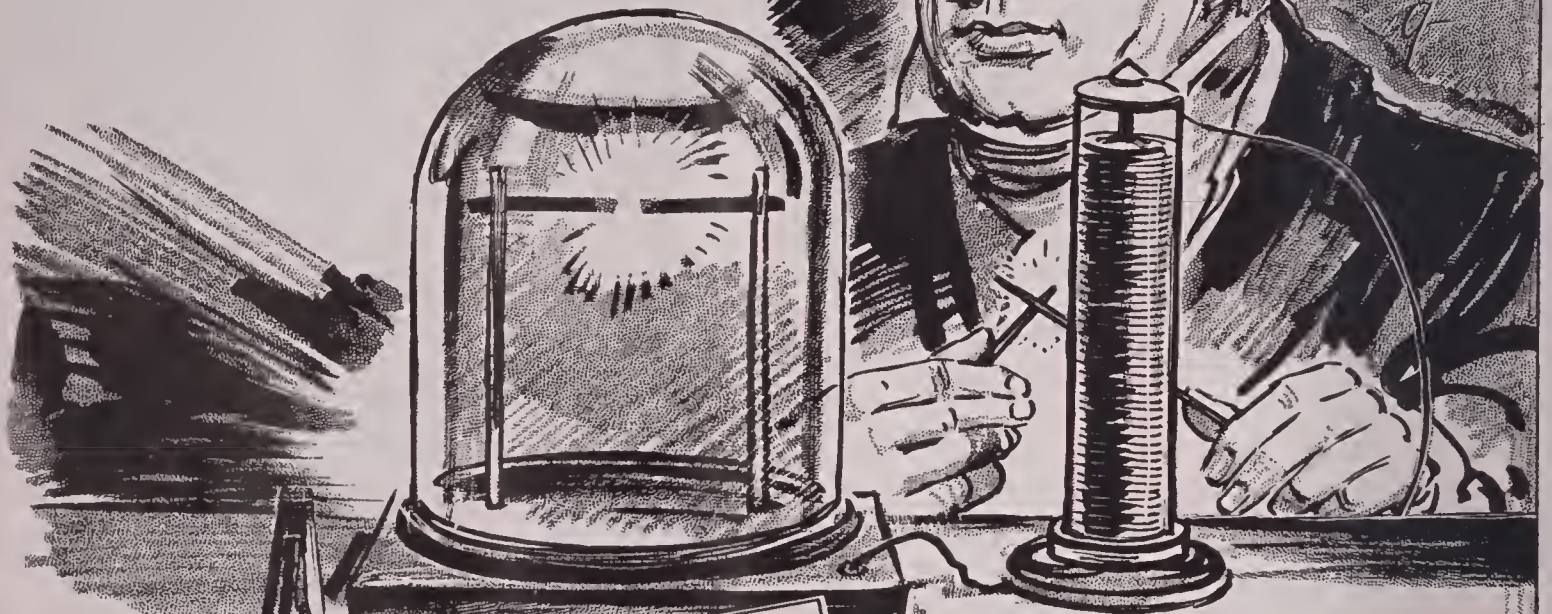
Chicago

Hollywood

SEEING IS BELIEVING!

THE FIRST ARC

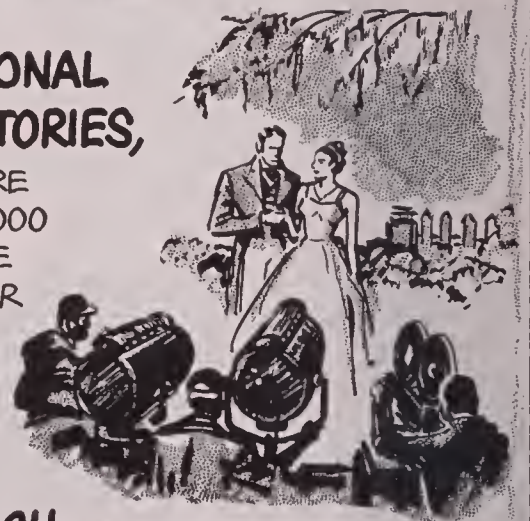
WAS STRUCK OVER 150 YEARS AGO
BY FAMED ENGLISH SCIENTIST,
SIR HUMPHRY DAVY,
USING TWO CRUDE CHARCOAL RODS
AND A PRIMARY BATTERY.



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BRIGHTNESS
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GRADUALLY A SET of rigid standards have been established by which the manufacturer of magnetic film recorders must be guided. These standards have developed partly through normal technological evolution, but to a greater degree, they have been laid down by the motion picture sound men. These are the people who assume responsibility to the producer for results—not excuses.

In order of importance, they have insisted upon three essential qualifications for an acceptable magnetic film recorder:

- 1—Regardless of cost, size or weight, such a machine must perform to the highest set of contemporary standards.
- 2—It must be dependable, consistent and rugged enough to withstand the abuses of field work without a need for endless adjustments and maintenance.
- 3—If the first two qualifications can be met it should be as light weight and compact as is consistent with good engineering practice.

Using this three-point program as a slide rule, Magnasync engineers set about to design its model sw-602. Any technical problem can be solved if the factor “regardless of cost” is entered into the formula. It has long been the hope of producer and sound man alike that such a machine could be manufactured to sell at a price consistent with the financial problems of making and selling films. The full story of how the last objective was reached is a subject in itself which could consume a large portion of this article. The point of principle interest to which this writing is devoted, revolves around the end results of the program.

Magnasync recording and reproducing equipment is all designed around a compact, high-quality film transport. Using this transport mechanism as a heart, and adding elements as needed, the Magnasync system may be expanded from a basic, fundamental recorder to any degree of complexity according to the requirements of the user.

To make this program fully effective, the basic mechanism had to be designed to transport film with the highest degree of motion stability. As a result, the small producer, who uses the standard sw-602 miniature recording system is able to develop a sound track as free of flutter and wow as the major producer who avails himself of all the accessory Magnasync equipment. Recent flutter-bridge tests conducted by a research laboratory not associated with the manufacturer of the Magnasync, produced logged results shown in Figure 4, with 16mm film traveling at 36 feet per minute on a standard model sw-602 Magnasync. A study of this chart re-

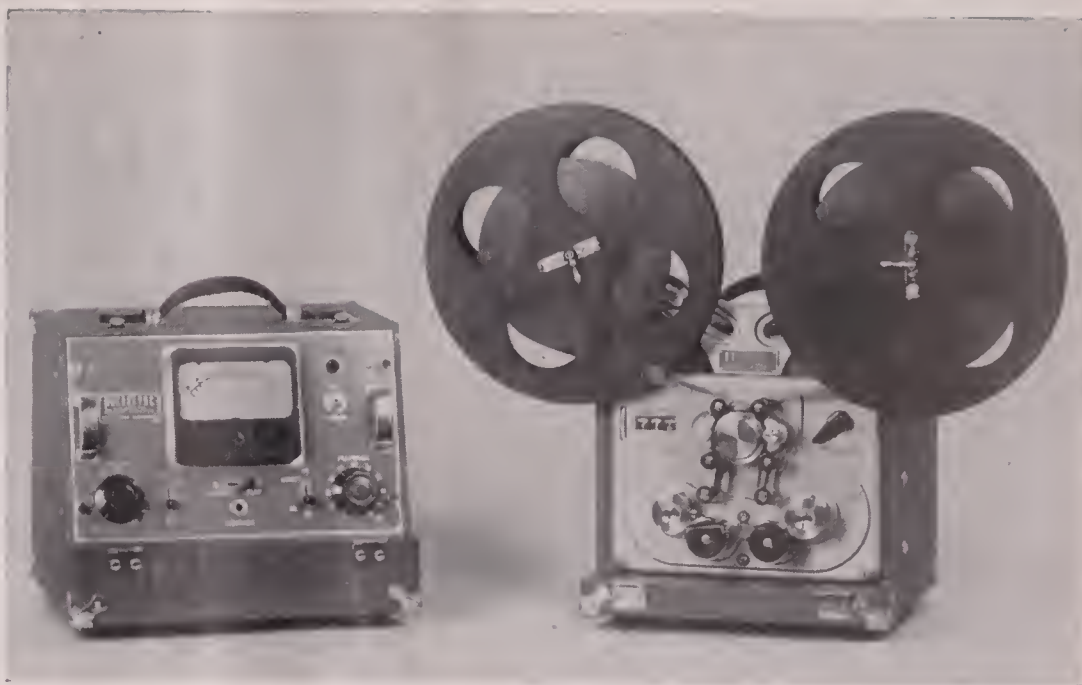


FIG. 1—The complete Model SW-602 Magnasync magnetic film recorder in portable cases. Overall size is 8" x 11" x 11" with a net weight for the two units of 39 lbs. Here reel arms are extended to accommodate 1200-foot film rolls.

The Magnasync Recorder

Compact, low-cost magnetic recorder ideally suited to needs of the independent, institutional or TV film producer.

By D. J. WHITE

Magnasync, North Hollywood, Calif.

veals the fact that Magnasync flutter and wow is well below the published specification of 0.2% R.M.S. maximum. Combine this excellent motion with the sw-602 portable amplifier which produces a clean, distortion-free response spectrum flat from 50 cps to 8000 cps ± 2 db and it is readily understandable why this machine has been so well re-

ceived by the motion picture sound men on the basis of performance specifications.

The miniaturization of a film transport capable of performing to these standards was probably the most difficult part of the Magnasync project. It was, however, essential if the machine

(Continued on Page 192)



FIG. 2—Model M-85 collapsible blimp for the SW-602 recorder, permitting operation of recorder close to microphone.



FIG. 3—Portable rack-mount version of the Magnasync recorder. Clutch overdrives and separate motors control takeup, rewind.



ROBERT SURTEES, ASC, (left) photographed MGM's "The North Country," the first Ansco Color feature film production, achieved remarkable results. With him is his assistant, Johnny Schmitz.



IN "THE WILD NORTH," pictorial grandeur is enhanced by a range of light value contrasts in perfect color balance, from the eye-dazzling highlights to the wealth of pictorial detail simultaneously visible in deep shadow. With film of such range of response, exterior color scenes need no longer appear flat and uninteresting.

The New Ansco Color Film And Process

Ansco Color film possesses photographic latitude ranging from realistic highlights to the detail inside deep shadows.

By ROBERT A. MITCHELL

NOTE—It was just a year ago that American Cinematographer magazine reported on Metro-Goldwyn-Mayer's initial Ansco Color production, "The Wild North." Since then, MGM has completed its second Ansco Color feature, "Ride Vaquero," and is currently in production on two more, "Take The High Road," and "Arena." The following article, which is condensed and reprinted from International Projectionist, for December, 1952, treats the subject of Ansco Film more technically than did our initial report. Omitted is the author's description of the processing procedure.—EDITOR

A NEW consciousness of the unlimited possibilities of color is making itself felt in the motion-picture industry. Not only are more feature pictures filmed in color than ever before, but newer full-color processes which permit greater photographic freedom, studio color-film processing, and release-print manufacture by regular "black-and-white" laboratories, are very much in evidence.

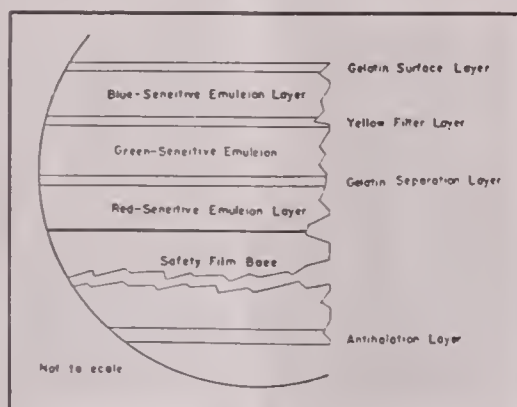
Among the foremost of these new

processes is Ansco color, used for filming and printing MGM's "The Wild North." In this production the full range of tone and color faithfully reproduced the freshness and ruggedness of the Canadian Northwest. The blue of sky and water, and the innumerable tones of green in natural foliage, flashed forth clearly and brilliantly on the screen to give a perfect illusion of reality.

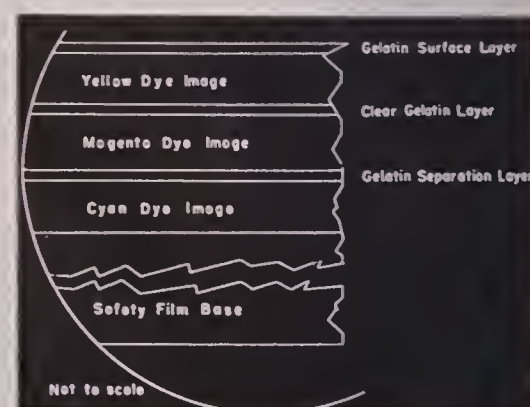
In some color films the deep shadows

in a photographed scene are actually a fog of dark red in which all pictorial detail is hopelessly lost. To prevent obliteration of the shadow detail in such films, it is necessary for the producer either to decrease the overall density (which unfortunately transforms the wispy texture of the highlights to a featureless glare) or else to reduce the photographic latitude, making the picture "thin" and "flat."

(Continued on Page 177)



UNDEVELOPED Ansco Color film, showing the color-sensitive emulsion layers.



DEVELOPED Ansco Color film, showing emulsion converted to dye images.

T W E N T Y - F I F T H A N N U A L A W A R D S

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C O N G R A T U L A T I O N S

to

WINTON C. HOCH, A.S.C.

and

ARCHIE STOUT, A.S.C.

1952 Academy Award Winners
for Color Cinematography

"The Quiet Man"

Argosy-Republic

Color by TECHNICOLOR

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The Members of the
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WINTON HOCH, A. S. C.
ARCHIE STOUT, A. S. C.
and
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DIRECTORS OF PHOTOGRAPHY
Who Were
NOMINATED
For
CINEMATOGRAPHY AWARDS

RUSSELL HARLAN, ASC,
"The Big Sky"
(20th Century-Fox)

HARRY STRADLING, ASC,
"Hans Christian Andersen"
(Goldwyn)

JOSEPH LaSHELLE, ASC,
"My Cousin Rachel"
(20th Century-Fox)

GEORGE FOLSEY, ASC,
"Million Dollar Mermaid"
(MGM)

CHARLES LANG, JR., ASC,
"Sudden Fear"
(Kauffman-RKO)

LEON SHAMROY, ASC,
"The Snows of Kilimanjaro"
(20th Century-Fox)

VIRGIL MILLER, ASC,
"Navajo"
(Lippert)

FREDERICK A. YOUNG, ASC,
"Ivanhoe"
(MGM)



FIG. 1—Simple remote control for camera permits rare shots of wildlife, etc.



FIG. 2—All professionals use reflectors for outdoor filming; they're easy to make.



FIG. 3—For extreme closeups, a focal frame will insure sharp focus and center.

Homemade Gadgets That Insure Better Movies

Professional results follow professional methods. Here are six easy-to-make gadgets that will improve the quality of your films.

By C. C. CHUVAX

GIVE MOST ANY serious amateur movie-maker adequate equipment and he'll turn out films the equal of many 16mm professionals'. That he doesn't always have the equipment that professionals have at their disposal is often a discouraging situation for the cinefilmer with a hot idea for a really serious movie. Still, the quality of most prize-winning cine films points to the fact that the imaginative and ingenious cinebug will invariably find a substitute for costly professional equipment, if the need is great enough. A few hours in the home workshop and an idea will work wonders for the cine filmer handy with tools.

Of course a primary requisite for good movie making is a good camera, a good lens and a sturdy tripod. There can be no substitute for these, and no improvisations. The more versatile the camera the better. If we expect to do special effects work, such features on

our camera as a single-frame movement, a variety of forward speeds, a footage and frame counter, a reverse film movement and an accurate viewfinder become increasingly important as we get into the job of producing amateur movies with a professional touch.

Perhaps one of the most versatile pieces of movie making equipment that one can construct in his garage or home workshop is a title stand. The one illustrated (Fig. 4) is a substitute for a professional version. Yet it is quite simple and inexpensive. The base of the stand is constructed of two-inch wood material, while the camera mount is fastened to a snug-fitting block that will slide smoothly from one end of the base to the other. The easel at one end of the base is made of soft plywood. Here title cards and background material are quickly and easily mounted with the aid of thumb tacks. The base of the stand can be marked off in feet and inches

from the easel to simplify the focusing problem. Zoom effect titles can be produced by starting camera movement at a position farthest from the easel and slowly moving it forward. The reverse of a zoom effect of course can be produced by starting the camera movement with a close up of a title card and slowly pulling the camera back. By making careful note of the footage registered by the camera when starting to expose the title, and again when the title filming is concluded, super-imposing a background on titles becomes a simple matter. With a cap over the lens, simply wind the film back to the starting position, substitute a selected background for the title card on the easel, and expose the same footage over again according to exposure indicated by a light reading of the background.

Other uses for the title stand include making titles that slide in and out of the lens view from left to right and those that rise vertically before the lens. Also a miniature set can be constructed on the unit in which animation and scenes in miniature may be photographed. Many tricks in table top photography may be indulged in also.

The photographing of wild life is becoming increasingly popular with both amateur and professional cinema-

tographer, and we are accustomed to thinking of such work as being done with an assortment of expensive telephoto lenses. While a good telephoto lens is a very useful piece of equipment, a remote controlled camera with a normal lens and a little patience on the part of the operator will net many worthwhile shots that are equal to or better than many telephoto efforts.

Illustrated is a remote control gadget for a Bolex camera (Fig. 1). It consists essentially of a cord-operated lever that presses the camera starter button when the cord is pulled from a point some distance away. With this arrangement it is possible to operate the camera from distances up to 75 feet. The procedure to follow is to set the remote-controlled camera up near the feeding places of wild life and wait for their appearance. In this work a sturdy tripod is essential. Lens-to-subject distance should not be less than four feet, due to the possibility of camera noise frightening your subjects.

Another device which the amateur cinematographer will find useful is a focal frame for doing extreme close up work. (Fig. 3) Lens attachments are available at local supply stores that enable a normal lens to focus down to within ten inches or less. In such closeup work the normal finder on the camera is no longer accurate and other means must be provided for determining the field of view. This is the function of the focal frame. The focal frame illustrated shows the set-up for a 25mm lens with a plus-three attachment. The lens to subject distance here is six inches and the field of view is $1\frac{1}{8}$ by $2\frac{7}{8}$ inches.

In most professional film making reverse action work is usually done in laboratories on special effects printers. Where the amateur desires such effects he must resort to reverse action photography with his camera—that is photography made with the camera mounted in an upside-down position. Film so

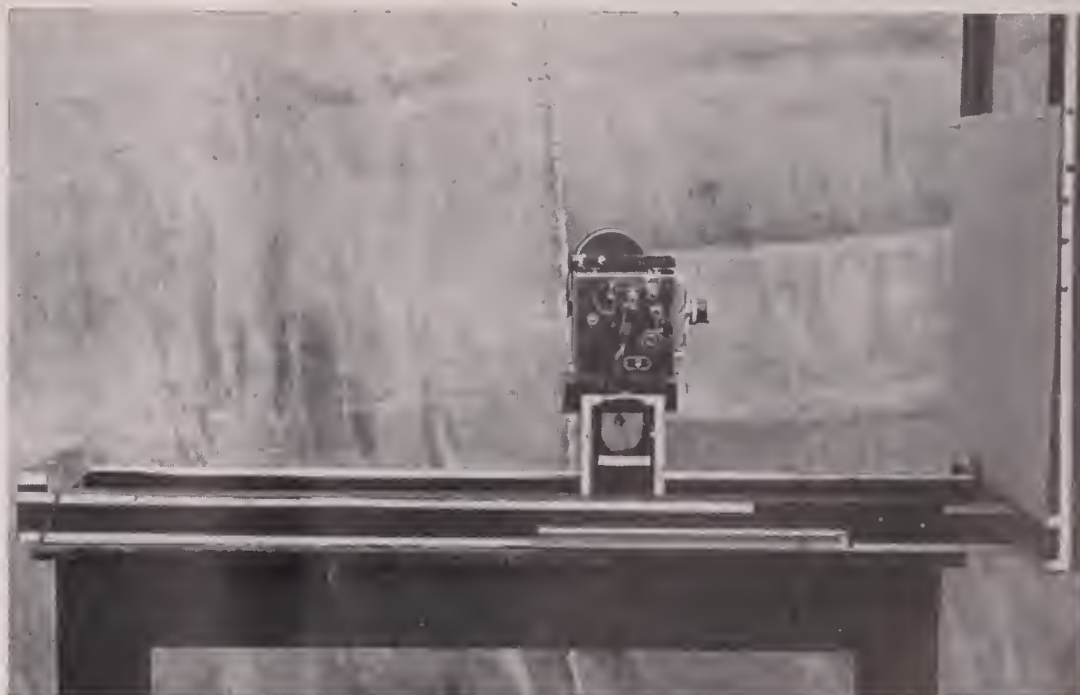


FIG. 4—Here's an easy to make titler that enables the amateur to make titles of a size large enough to utilize inexpensive cut-out letters, photo backgrounds, etc. Any number of ways can be devised to insure accurate centering of camera with title board.

exposed and projected in the reverse order can give the effect of a simulated automobile crash—of flowers jumping from the ground to the hand of a subject and etc.

For making trick reverse-action shots with the camera in inverted position, it is important that the inverted camera be mounted on a tripod and be as rigid and yet flexible in operation as when mounted normally. A simple device for so mounting any cine camera is pictured in Fig. 5. It consists of a short length of $\frac{1}{4}$ -inch strap-iron, braced as shown to the tripod with a length of aluminum tubing. Holes drilled at either end of the strap-iron take the tripod screw and also screw for mounting the camera.

A good light reflector is another piece of equipment that plays an important part in making movies with professional quality. The importance of reflected

light is readily apparent when doing closeup or medium closeup work out-of-doors with any type of film. And when doing low contrast lighting for color film, a good light reflector will save many shots that might otherwise wind up in the waste can.

The construction of a reflector is perhaps the most simple of all movie making gadgets. Essentially it consists of a light reflecting surface, some two by three feet in size, and means of positioning it so that its reflected light will strike the subject being photographed from the proper direction. (See Fig. 2).

In the former requirement a piece of heavy cardboard, given a couple of coats of aluminum paint, makes a good reflector for soft light. A mount for the reflector may assume many forms. Best, perhaps, is a frame that allows the reflecting surface to be moved vertically,

(Continued on Page 193)

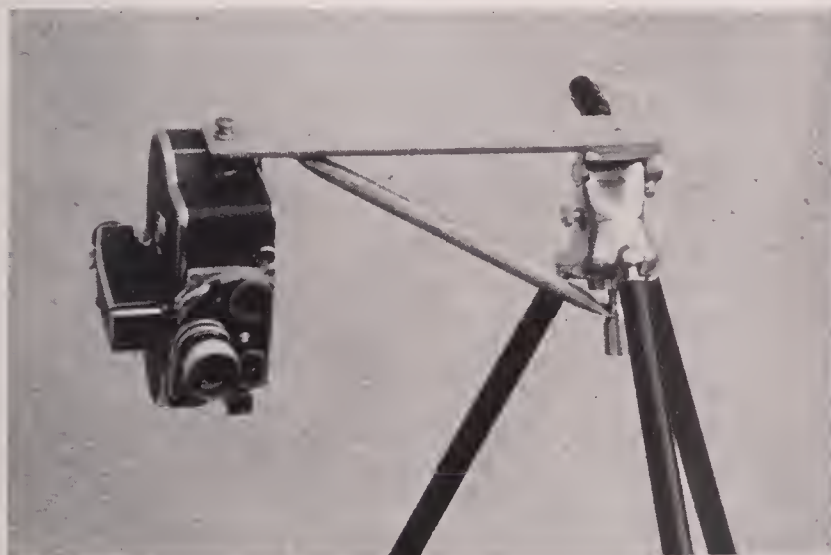


FIG. 5—Reverse action trick photography requires the camera to be mounted upside down. The mount must be rigid, yet permit easy access to camera. Here's a simple reverse gadget anyone can make.

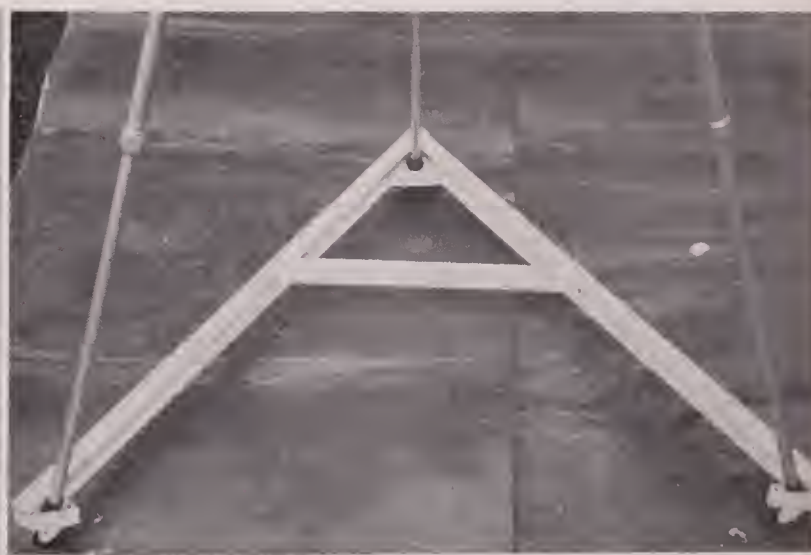


FIG. 6—This tripod triangle-dolly combination serves two purposes: to hold the tripod secure on slick floors and to permit dolly shots by the camera operator himself; author's text tells how.

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IF THE LADY in your life has always wanted to shoot movies but shies away from using your camera because "it's too complicated," or if she's the type who's always using *your* camera when she shouldn't, here's the brand new Bell & Howell "220", just made to order for her. In fact this camera was designed for everyone who wants a simple, sure and accurate camera for making movies of family events, vacation trips, etc. With this slick 8mm job all one needs to do is *set, sight, and shoot!* . . . it's that simple.

Bell & Howell Company not only had movies-minded wives in mind when designing the "220," but a lot of other people who'd like to shoot movies if only they could do it simply and with assurance they'd get consistently good pictures. The result was the "220"—the camera that enables anyone to make 8mm movies in black-and-white or color as easy as making snapshots with a "Brownie."

The attractive feature of the camera is its simplified "Sundial" exposure computer coupled with the lens diaphragm that insures good exposures and dispenses with need for an exposure meter. The "Sundial" may be seen just below the lens in the photograph above, left. On the scale-plate are four positions corresponding to four generally-encountered outdoor light conditions: bright sun, hazy sun, light shade, and cloud-dull. Turning the "Sundial" to the reading that matches the existing outdoor light automatically sets the lens at the proper opening for either color or black-and-white film. For those who would set the lens according to f/stops, these are inscribed on the upper portion of the "Sundial" and range from f/2.5 to f/16. So, with setting exposure reduced to such a simple routine, how can anyone miss?

The 10mm f/2.5 coated lens is pre-focused to obtain sharp pictures at its widest opening, so there is never a focusing problem. The lens covers 25% more picture area than conventional lenses supplied with 8mm cameras. A telephoto attachment is available as accessory equipment.

The next and no less important feature of the "220" is the "picture window" viewfinder—the largest and brightest of any cine camera. It's right on top of the camera where it is easy to use; you see the exact area to be filmed with everything lifelike in size.

A complete winding of the "220's" hand crank provides a full ten foot film run. There is a mechanism which stops the camera before the motor is fully unwound. This means that the camera speed is constant over the full ten-foot



WITH BELL & HOWELL'S new model "220" 8mm cine camera, movie making is easy and inexpensive. A turn of the "Sundial" (left) to the reading that matches the outdoor light automatically sets the lens. Lens is fixed-focus, so there are no other adjustments to make.

Set, Sight and Shoot!

Yes, that's all there is to making movies with Bell & Howell's newest 8mm camera that features automatic f/stop selector and exclusive "picture window" viewfinder.

By JOHN FORBES

film run, insuring perfectly exposed pictures from the beginning to the end of each scene. The camera runs at the conventional 16 frames per second for complete simplicity of operation.

The camera's starting button can be set for (1) normal operation, (2) continuous run, which allows the cameraman to get into the picture, and (3) single-frame exposure for animation work and trick effects.

The "220" uses low cost 8mm film in black-and-white or color. Film is drop-

ped into the camera. There are no sprockets to thread. The film gate closes automatically as the camera door snaps shut, eliminating any chance of spoiling film by forgetting to close the gate. The footage counter automatically sets itself as the camera door closes. You can tell at a glance the number of feet exposed and the number unexposed.

There's no leather on the camera anywhere to peel or strip off. The camera case is entirely die-cast and finished in

(Continued on Page 187)

ROSTER OF CINEMATOGRAPHY OSCAR WINNERS 1928 to 1952

Year	Class.	Cameraman	Picture Title	Studio
1952	B&W Color Color	Robert Surtees, A.S.C. Winton Hoch, A.S.C. Archie Stout, A.S.C.	"The Bad and the Beautiful" "The Quiet Man" "The Quiet Man"	MGM Argosy
1951	B & W Color Color	William Mellor, A.S.C. Alfred Gilks, A.S.C. John Alton, A.S.C.	"A Place In The Sun" "American In Paris" "American In Paris" (Ballet Photography)	Para. MGM
1950	B & W Color	Robert Krasker Robert Surtees, A.S.C.	"The Third Man" "King Solomon's Mines"	British MGM
1949	B & W Color	Paul Vogel, A.S.C. Winton Hoch, A.S.C.	"Battleground" "She Wore Yellow Ribbon"	MGM R.K.O.
1948	B & W Color Color Color	William Daniels, A.S.C. Joseph Valentine, A.S.C. William V. Skall, A.S.C. Winton Hoch, A.S.C.	"The Naked City" "Joan Of Arc" "Joan Of Arc" "Joan Of Arc"	U-I R.K.O.
1947	B & W Color	Guy Green Jack Cardiff, A.S.C.	"Great Expectations" "Black Narcissus"	Rank-U-1 Rank-U-1
1946	B & W Color Color Color	Arthur Miller, A.S.C. Charles Rosher, A.S.C. Leonard Smith, A.S.C. Arthur Arling, A.S.C.	"Anna And King Of Siam" "The Yearling" "The Yearling" "The Yearling"	Fox MGM
1945	B & W Color	Harry Stradling, A.S.C. Leon Shamroy, A.S.C.	"Picture Of Dorian Gray" "Leave Her To Heaven"	MGM Fox
1944	B & W Color	Joseph LaShelle, A.S.C. Leon Shamroy, A.S.C.	"Laura" "Wilson"	Fox Fox
1943	B & W Color Color	Arthur Miller, A.S.C. Hal Mohr, A.S.C. W. Howard Greene	"Song Of Bernadette" "Phantom Of The Opera" "Phantom Of The Opera"	Fox Univ.
1942	B & W Color	Joseph Ruttenberg, A.S.C. Leon Shamroy, A.S.C.	"Mrs. Miniver" "The Black Swan"	MGM Fox
1941	B & W Color Color	Arthur Miller, A.S.C. Ernest Palmer, A.S.C. Ray Rennahan, A.S.C.	"How Green My Valley" "Blood And Sand" "Blood And Sand"	Fox Fox
1940	B & W Color	George Barnes, A.S.C. George Perrinal	"Rebecca" "Thief Of Bagdad"	Selznick Korda
1939	B & W Color Color	Gregg Toland, A.S.C. Ernest Haller, A.S.C. Ray Rennahan, A.S.C.	"Wuthering Heights" "Gone With The Wind" "Gone With The Wind"	Goldwyn Selznick-MGM
1938		Joseph Ruttenberg, A.S.C.	"The Great Waltz"	MGM
1937		Karl Freund, A.S.C.	"The Good Earth"	MGM
1936		Tony Gaudio, A.S.C.	"Anthony Adverse"	WB
1935		Hal Mohr, A.S.C.	"Midsummer Night's Dream"	WB
1934		Victor Milner, A.S.C.	"Cleopatra"	Para.
1933		Charles B. Lang Jr., A.S.C.	"A Farewell To Arms"	Para.
1932		Lee Garmes, A.S.C.	"Shanghai Express"	Para.
1931		Floyd Crosby, A.S.C.	"Tabu"	Para.
1930		William Van Der Veer Joseph T. Rucker	"With Byrd At So. Pole" "With Byrd At So. Pole"	Para.
1929		Clyde DeVinna, A.S.C.	"White Shadows In So. Seas"	MGM
1928		Charles Rosher, A.S.C. Karl Struss, A.S.C.	"Sunrise" "Sunrise"	Fox

ACADEMY AWARDS

(Continued from Page 159)

George Barnes, ASC, and Pev Marley, ASC.

Best Story and Screenplay: T. E. B. Clarke, "Lavender Hill Mob," J. Arthur Rank-Ealing Studios.

Best Art Direction (Black-and-white): Cedric Gibbons and Edward Carfagno, "The Bad and the Beautiful," MGM. (Color): Paul Sheriff, "Moulin Rouge," Romulus Films.

Best Set Direction (Black-and-white): Edwin B. Willis and Keogh Gleason, "The Bad and the Beautiful," MGM. (Color): Marcel Vertes, "Moulin Rouge," Romulus Films.

Best Film Editing: Elmo Williams and Harry Gerstad, "High Noon," Stanley Kramer Productions.

Best Sound: "Breaking The Sound Barrier," London Films.

Runners-up in the competition for cinematography awards were the following directors of photography—all members of the A.S.C.:

Russell Harlan, who photographed "The Big Sky," for Fox; Joseph La Shelle, who photographed "My Cousin Rachel" for Fox; Virgil Miller, who photographed "Navajo" for Hall Bartlett; Charles Lang who photographed "Sudden Fear" for Kauffman-RKO; Harry Stradling, who photographed "Hans Christian Andersen" for Goldwyn; Frederick Young, who photographed "Ivanhoe" for MGM.; George Folsey, who photographed "Million Dollar Mermaid" for MGM; and Leon Shamroy, who photographed "The Snows of Kilimanjaro" for Fox.

This year, a total of ten 1952 productions were nominated for cinematography awards by the Academy, as reported here last month. Five were in color and five in black-and-white. The above-named runners-up as well as those in other classifications will each receive a Nomination Certificate from the Academy. This is no small honor, for it often happens that only a very few votes separate the "also-rans" from the Oscar winners.

Several members of the A.S.C., incidentally, served on the Academy sub-committees. Sol Halprin, John Arnold, Joseph LaShelle, Charles Lawton, Ted McCord, Nick Musuraca, Sol Polito, Clifford Stine, Walter Streng, and Karl Struss served on the Cinematography sub-committee along with Wallace Kelly of the Research Council and William Wade of Republic Studios.

The sub-committee for the Special Photography division consisted of A.S.C. members Farciot Edouart, Paul Eagler, John Fulton, Don Glouner, and Hans Koenekamp; also A. Arnold Gillespie, Jack Glass, Ray Kellogg, Cecil Love,

Sid Lund and Ellis Thackery.

One or two highlights of the Awards presentation ceremony are worth mentioning: The two awards won by "The Quiet Man" (direction and color cinematography) marked the first Oscars ever awarded a production under the banner of Republic Studios. Cecil B. DeMille, whose films in the past have always been big money-makers but who never received an Academy Award, finally came through a winner this year for "The Greatest Show on Earth." He also won the coveted Thalberg Memorial Award. John Ford, who won an Oscar for the direction of "The Quiet Man," became the first four-time Oscar winner among motion picture directors. **END**

ANSCO COLOR FILM

(Continued from Page 166)

In "The Wild North" pictorial grandeur is enhanced by a range of light-value contrasts in perfect color balance from the eye-dazzling highlights to the wealth of pictorial detail simultaneously visible in deep shadows. With film of such range of response, exterior color scenes need no longer appear as though photographed at high noon—flat and uninteresting; but producers can capture the flavor of time, locale and atmospheric and seasonal mood in the color medium. Color, that is, becomes a *dramatic* medium, to be treated as such by the more sensitive masters of movie-making.

Of direct importance to the projectionist in his own immediate responsibility is the fact that Ansco color film possesses the same consistently sharp focus as black-and-white; and comparable resolving power—the ability to separate and present small details.

These prints require no special projection technique. Color on the theatre screen is always at its best, however, when the projectionist gives adequate attention to the arc lamps to avoid faulty screen illumination resulting from discolored or uneven light; and, of course, when all projection gear in the light path is kept immaculately clean.

Ansco color prints are made on high-acetyl base of first quality and are, therefore, readily spliced with the same safety cements or double-purpose cements that give satisfactory results on black-and-white high acetyl-prints.

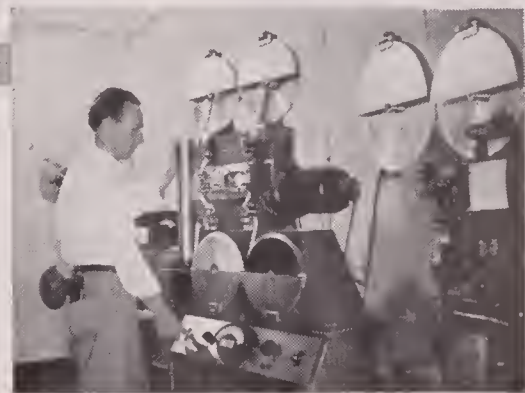
There are three main types of color film: (1) those that have color built into the photograph emulsion, and hence are exposed and printed photographically; (2) those that have the images stamped on the film by dye-soaked, relief-image matrix films, and (3) those that utilize chemical dye-toning of black-and-white

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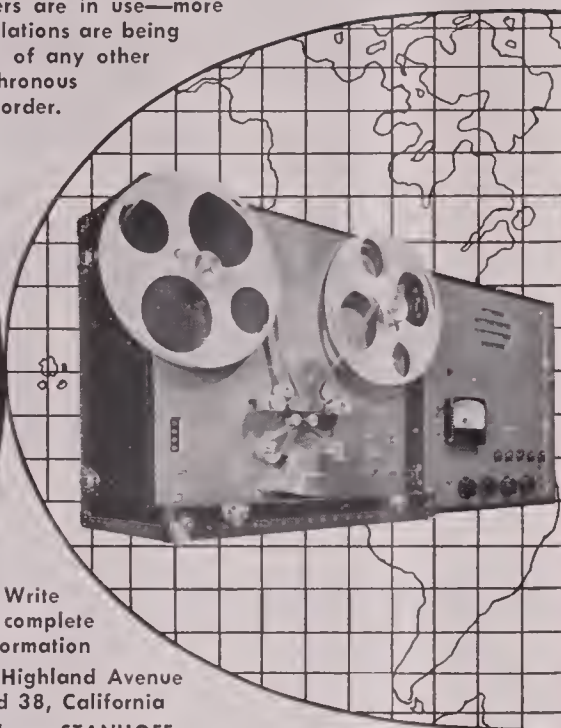
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Bargains Galore in this month's Classified Ads on Page 194

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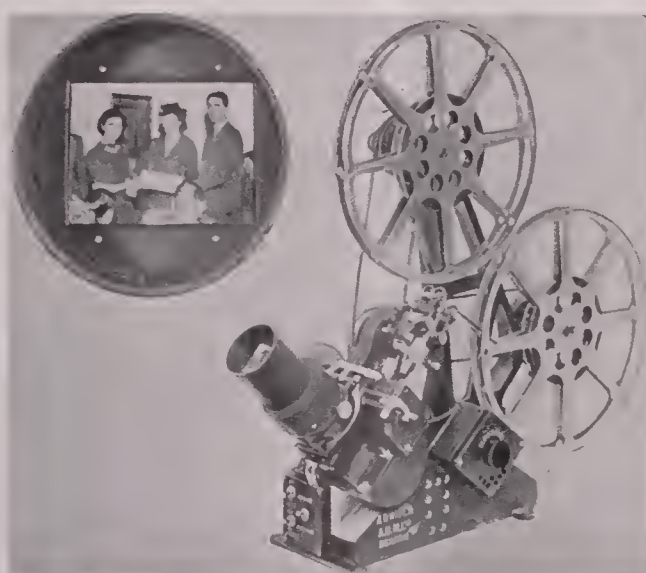
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emulsions, usually coated on both sides of the film-base.

Anso color, the subject of this article, belongs to the first class. Its camera is an ordinary camera, without color filters or beam-splitting optical system. Only this and other "monopack" films can be exposed in ordinary single-aperture, single-magazine movie cameras, developed on ordinary black-and-white processing machines and printed on ordinary black-and-white printers. This simplicity is possible only when the color has been built into the emulsion during manufacture of the raw stock.

All natural-color photography involves some method of splitting up the vari-colored light of the scene to be photographed into three primary components, thus forming three separate images, or "color records." The light is analyzed in the camera into its components; while in the print these components are brought together again to synthesize the colors of the scene photographed.

The color-photographic analysis may be accomplished by simultaneously exposing three negatives, each through a separate color-filter, which, of course, requires a special beam-splitting camera having three picture-apertures, three sprocket-trains, etc.; or else through a simplified variation that permits two records to be made through a single aperture. In Anso color, however, the color-analysis is accomplished inside the emulsion of the negative.

There are three color-receptors in the human eye. These are sensitive to red, green (a very slightly yellowish green), and indigo (violet-blue). When colored lights are mixed on a white screen, it is possible to reproduce all colors (including hueless white) by combining red, green, and indigo in various proportions. R, G, and I, therefore, are the three primary colors.

Painters, however, have a different set of "primary" colors which they use when mixing pigments. These are cyan (a slight greenish blue), magenta (a moderately purplish red), and yellow (very slightly greenish yellow). Actually, C, M, and Y are not primary colors but complimentary to the primaries.

In Anso color negatives the light-sensitive emulsion contains built-in cyan, magenta and yellow "process colors" sensitized to the same spectral bands, or regions, to which the three color-receptors of the human eye are sensitive. Just why C, M, and Y dyes are used for building up the images on color film, instead of the true primaries R, G, and I, will become clear when the process is examined in detail.

To do this, let's forget Anso and other color processes in commercial use, and invent one of our own. It may not have much practical value; but it will

clarify the principle involved in making a natural-color print from the three color records. Suppose three negatives are exposed in a beam-splitting, 3-aperture color camera. These color negatives will develop black-and-white, of course, and all three will look exactly the same except that the densities of all colored objects photographed will be more or less different on each negative. In other words, the color values are "latent" in the three simultaneously exposed negatives.

We then make a black-and-white print from each negative. Now if the black-and-white image on the positive printed from the "red-record" negative is converted—by chemical toning, let's say—to that color which *ABSORBS* red light from white light, the image will then subtract red from all the areas where no red was present in the original scene. The color which is completely red-subtracting happens to be cyan!

Remember—we are not *tinging* our red-record positive all over with cyan; we are only *toning* the photographic image from a black silver image to a cyan image.

The same idea is carried out with the other two positives. The silver image on the film printed from the green-record negative will be toned to a magenta image because magenta absorbs all green. And the image printed from the indigo-record negative will be toned yellow.

We now have three very pretty positives, one with cyan pictures, one with magenta pictures, and one with yellow pictures. But still no natural-color pictures. How can we get them?

Place the three positives one over the other in exact registration and glue them together so they won't slip out of line—that's all we have to do. Each process color (C, M, or Y) will subtract its proper primary color (R, G, or B) from the white light of the projector, and lo! we obtain a picture in perfect natural color. Now three thicknesses of film glued together admittedly might be too bulky for the smoothest projection results; so the best commercial processes superimpose all three colors (C, M, and Y) in one coating of emulsion.

In imbibition-process color films the image is built up in three printings on a single film. In Ansco color films there are three very thin color-sensitive and color-forming emulsions coated on one side of the film-base. The total thickness of the Ansco color multilayer emulsion "pack" is not appreciably greater than that of regular black-and-white emulsion.

1. *The Indigo-Sensitive Layer.* The Ansco color multilayer emulsion is surfaced by a thin layer of glossy gelatine which protects the emulsion from accidental scratching. Directly underneath this invisible protective coating is a lay-

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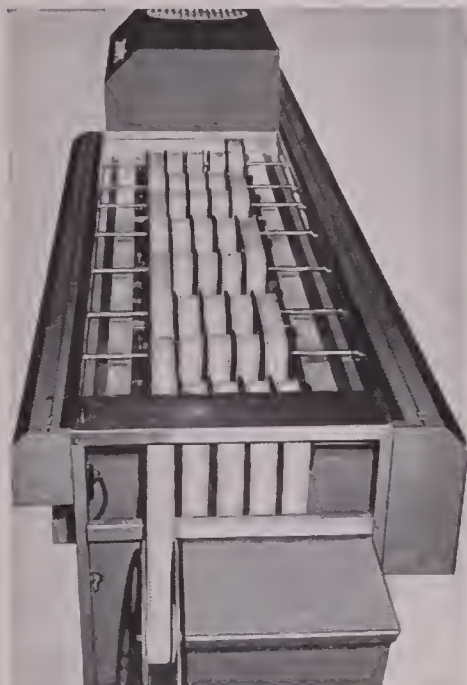
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er of photo emulsion which is affected only by indigo-violet light, and does not respond to green or red. This emulsion, therefore, constitutes the indigo record.

Below the indigo-sensitive emulsion is a yellow *filter-layer* which screens indigo light from the two emulsions which lie below it. The deep yellow color of this gelatine layer is produced by colloidal silver—dispersed silver grains much smaller than those in a black or gray silver image. Red and green light pass practically unimpeded through this filter-layer, since yellow represents white light from which indigo rays have been removed (leaving red and green).

2. *The Green-Sensitive Layer.* Under the filter-layer lies an emulsion which is sensitive to both green and indigo light. Indigo light, however, is prevented from reaching this emulsion by the yellow filter-layer. This emulsion, accordingly, photographs only green light, and is known as the green record.

3. *The Red-Sensitive Layer.* Under the green-recording emulsion there is a special emulsion which is "blind" to green, but photographs red light. This emulsion is, of course, also protected from indigo-blue by the yellow filter layer. It therefore constitutes the red record.

The red-sensitive emulsion is coated on the clear high-acetyl safety-film base. But coated on the non-emulsion side of the base is a dark "antihalation" coating which prevents the light passing through to the back of the film during exposure in camera or printer; from being reflected and scattered into the light-sensitive emulsions, spoiling the image with glare-spots and halos. All camera film, whether color or black-and-white, has an antihalation backing which washes off when the film is developed.)

A "pack" of three microscopically thin emulsions, each sensitive to a different primary spectrum-color, is not enough, by itself, to produce a picture in natural color. If this were all there were to Ansco color film, it would behave exactly like black-and-white film even though latent color values reside in the three sensitive layers. Something more must be put into the film to transform color values into actual color that we can see. Ansco must "tone" the three sensitive layers to their latent color values of cyan, magenta, and yellow. To accomplish this, there are added special chemicals called "color-formers," a yellow color-former being incorporated in the indigo-sensitive emulsion, a magenta color-former in the green, and a cyan color-former in the red-sensitive layer. The color-formers have no color of their own, but they react, during development of the film, with "dye-couplers" in the developing solution to form the desired yellow, magenta, and cyan dyes.

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CANADA

in color to the primaries recorded, the new Ansco color film is called a multi-layer *complementary-color* film. The triple-layer cyan, magenta, and yellow images are entirely equivalent to the three glued-together positives we imagined a few paragraphs back, but thin enough throughout their triple ply for accurate focusing and flexible enough for practical, ordinary projection. And they are characterized by extreme stability of the dye images.

Ansco Color Negative Film Type 843 is exposed in the usual way in any 35-mm motion-picture camera. This camera film is intended for exposure with day-light-quality light-sources, although overall color balance on a movie set is not critical. It is only necessary to have all light sources—low-intensity arcs, high-intensity arcs, and incandescent lamps—balanced to the same color temperature except where special effects are desired. Standard filters used in all interior color filming enable a proper balance to be obtained.

The exposed camera film is developed in the same manner as black-and-white film, the only addition to the process being a bleach bath and a second "fix."

In a regular black-and-white negative all tones are reversed—shadows and dark objects in the photographed scene coming out light on the negative, and

the highlights coming out dark. So also with Ansco color negative film. And because *all* photographic values are reversed, the colors of the photographed scene are reversed to their complementary colors—blue sky appearing as orange, red blood as pale blue-green, *etc.* Ansco color negative, therefore, is a true negative, and from it Ansco color positives are made.

So far nothing has been said of the sound-track. Sound is not recorded directly on the picture negative in professional movie-making, but on sound-recording stock by a recording head driven in synchronism with the picture cameras. The original sound recordings may have either photographic or magnetic tracks, magnetic recording being in favor at the present time because of its high fidelity and low noise-level.

Whichever recording method is used, independently recorded sound-effects and background-music tracks are properly "dubbed" into the principal record of the dialogue and sounds that originated on the set during shooting. Sound mixing is accomplished by means of an apparatus which has several soundheads (reproducers) feeding their combined output into a single recorder. The chief recordist sits at the console of the mixer like an organist and manipulates the volume controls which regulate the

strength of sound from all the simultaneously-playing tracks. The resultant, or mixed, sound is recorded photographically on a single film.

This film is the master sound negative from which a master sound positive and a number of duplicate sound negatives, used for printing the soundtrack on the theatre-release prints, are derived by contact-printings.

This brings us to the matter of making Ansco color soundtrack prints for theatre projection. Now, release prints are only very rarely made from the original camera negatives, not even in black-and-white work. As is the case with the soundtrack recording, a number of duplicate negatives are prepared for printing the release positives. The preparation of these picture dupe negatives is an interesting process, and provides a peep behind the scenes of professional film make-up.

Just as the rolls of processed negative film for a black-and-white movie must be harmonized and balanced for consistent density and contrast in the release prints, so also must the negatives for a natural-color movie be photographically adjusted. And with color film there is the additional problem of color-balance. (That is, the overall tone of the scenes must not vary in tint except for desired pictorial and dramatic effects. The color



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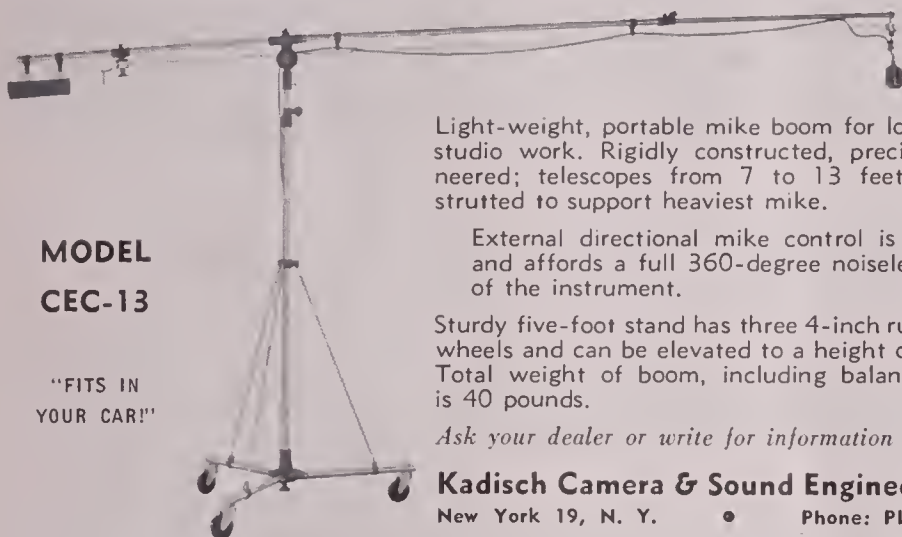
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must be balanced to give the most nat-
ural results with the white light of the
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necessary to make duplicate negatives
from which to print the release posi-
tives? Why not print them directly from
the original camera negatives, making
all light and color-balance corrections
during printing?"

This can be, and is, done on occasion;
but professional productions involve op-
tical effects which are not present in the
camera negatives. These include fades,
dissolves, wipes, photomontages, mul-
tiple exposures, travelling-mask shots,
etc. It is considered unwise to cut these
optical effects into the original camera
negative, a mighty precious commodity.

Then, too, it would be extremely fool-
hardy to risk damage to the original neg-
ative through the routine printing of
several hundred release positives. In
fact, in order to speed up the work and
maintain good picture and sound qual-
ity, it is mandatory to make a dozen or
so duplicate negatives, some of which
are sent to foreign countries for re-
lease-printing overseas.

From the original Ansco Color Type
843 Camera Negative Film a master
positive film is printed. This may either
be in full color by printing on Ansco
Color Type 848 Positive Motion-Picture
Printing Film, or (as is preferred in pro-
fessional practice) the master positive
is made in the form of three black-and-
white positives, one for each primary
color.

The development process for Ansco
color release prints is the same for the
negative, except that special treatment is
given to the soundtrack in order to ob-
tain a regular silver-image track.

Interesting is the fact that the sound-
track may be printed in any one, any
two, or all three of the emulsion layers
of Ansco color film. If, for example,
an indigo filter be placed between the
light and the sound negative in the
printer, the track will print only in the
top indigo-sensitive emulsion. If the fil-
ter be cyan, transmitting both indigo
and green light, the track will print in
both the top and middle layers. With
no filter all three layers will print.

The top indigo-sensitive layer was
used for printing the soundtrack of
MGM's "The Wild North." This layer
has the finest grain and does not re-
quire any electrical high-frequency
equalization to equal the frequency-re-
sponse characteristics of black-and-
white prints. Other laboratories, how-
ever, are obtaining good results with 2-
and 3-layer tracks.

This description concerns the new
Ansco color film as it is being made and
used at the present time—a fact to bear

in mind in view of continued progress in the popular and rapidly expanding process of making motion pictures in full natural color. Further improvements are inevitable. It is quite possible, for example, that the yellow filter-layer of colloidal silver may soon be eliminated.
END

BOOM SHOTS

(Continued from Page 161)

in which it is decided how action patterns must be staged to put across the dramatic values of the script—and, secondly, how the camera can become an *active* force in making these patterns count for fullest visual effect.

(3) *To establish a spacial relationship between separate elements of the scene.*—Sometimes, when the structure of a large set is on the intricate side, it becomes a genuine problem to keep the screen geography straight in the minds of the audience. Unless the spacial relationship of the various physical areas is first made clear by some comprehensive establishing shot, direct cuts from one segment of the locale to another may leave the audience confused as to where a particular bit of action is occurring.

Obviously, the best way to dispel such doubt is by means of a well-planned boom shot. Skillfully executed, such a shot becomes more than a mere Cook's tour with the camera; it can effectively set the atmosphere for the entire sequence.

Ideally, such a shot should begin at maximum height and with the widest practical angle, in order to establish as much of the set as possible. With the boom descending to eye level, the camera then picks out a leading character and follows him from one part of the set to another. Or perhaps it will follow several subordinate characters, picking up one and following him for a distance, then leaving him to concentrate on another. In this way, set geography is established, an atmosphere or mood is created, and characters are introduced.

(4) *To focus attention sharply on one part of a wide composition.*—The camera is a selective mechanism. With it one can pick and choose what one wants to show, and ignore what need not be shown. Moreover, this selectivity is given quite a lot of emphasis by the choice of angle used to show any one element in the scene—it being generally recognized that the *closeup* is the most emphatic shot.

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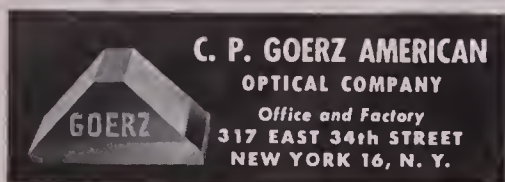
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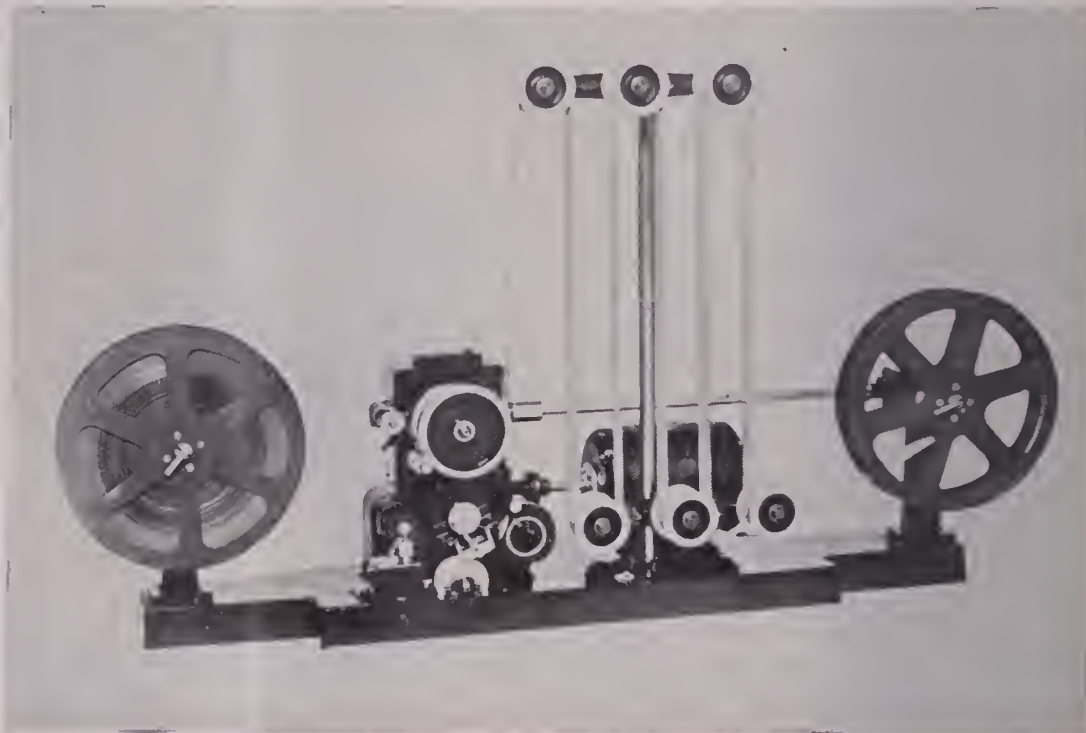
narrow down to a single small element of that situation. An outstanding example of this effect is a scene from the film "Notorious," produced by Alfred Hitchcock several years ago. In the earlier scenes of this picture the key to a wine cellar had been established as a prop most vital to the plot.

The scene mentioned began with a very high long shot of a ballroom where a lavish party is in progress. The camera is aimed toward the whirling figures of the dancers—then it booms rapidly down to an extreme close-up of the key

held in the hand of the main character. This change of angle from an establishing long shot to a screen-filling close-up of a prop 2 inches long was most effective—and it could not have been accomplished except by means of a camera boom in the hands of highly skilled technicians.

In the film "Citizen Kane," photographed by the late Gregg Toland, A.S.C., with what is generally conceded to have been a revolutionary camera approach—there is a famous scene in which the camera establishes an opera

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chine is 2000 ft. and the printing speed is 50 ft. per minute. The 16mm model prints between the perforations only but the 35mm model can be supplied to print between the perforations or on the outside edge.

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Film laboratories in Hollywood have been using the prototype of this machine for many years, while most recent purchasers are Movielab Laboratories Inc., New York; U.S. Air Force, Wright Patterson Field, Ohio; Southwest Film Laboratory Inc., Dallas, Texas; and U.S. Photographic Equipment Corp., Brooklyn, N. Y.

singer making her debut on stage. It then goes booming up through the flies of the gallery, coming to rest on a stage-hand squatting on a catwalk who holds his nose in an eloquent gesture of disapproval.

Similarly, in the current M-G-M release, "The Bad and the Beautiful,"—a picture filled with effective boom shots—the camera begins on a shot of an actress playing a scene on the sound stage. It then booms upward past a huge crew of technicians and stage hands, coming to rest on a close shot of an electrician high on a parallel who smiles his approval of the scene.

(5) *To help add movement to a basically static situation.*—It is in this application that the boom shot either does wonders or goes completely haywire. Actually, the odds are against it—for valid cinematic movement should stem from a happy combination of script, direction and acting rather than from the physical mechanics of the screen medium.

Sir Laurence Olivier's filmnization of "Hamlet" is a prime example of a production in which boom shots were used both well and badly. On the credit side are the sequences in which the moving camera was coupled with broadly sweeping patterns of action to add genuine force and dash to Shakespeare's literary prose.

Less successful, however, were the sequences in which the camera wound its solitary way up the staircases and ramparts of the gloomy castle, never encountering a single human being. A bit of this might have gone far to create a mood of impending disaster—but so much of this type of camera meandering was used that the technique called attention to itself. The audience could almost see the operator riding the boom and skillfully managing to keep an imaginary subject centered in the frame.

On the other hand, no one would quarrel with Olivier's use of the camera boom to capture the full sweep of the Battle of Agincourt in his craftsmanlike production of "Henry V." Here, as in the Battle of the Tournelles sequence in "Joan of Arc," the boom helped translate into kinetic action sequences which seemed rather static and academic on paper—and which might have remained so on film, as well.

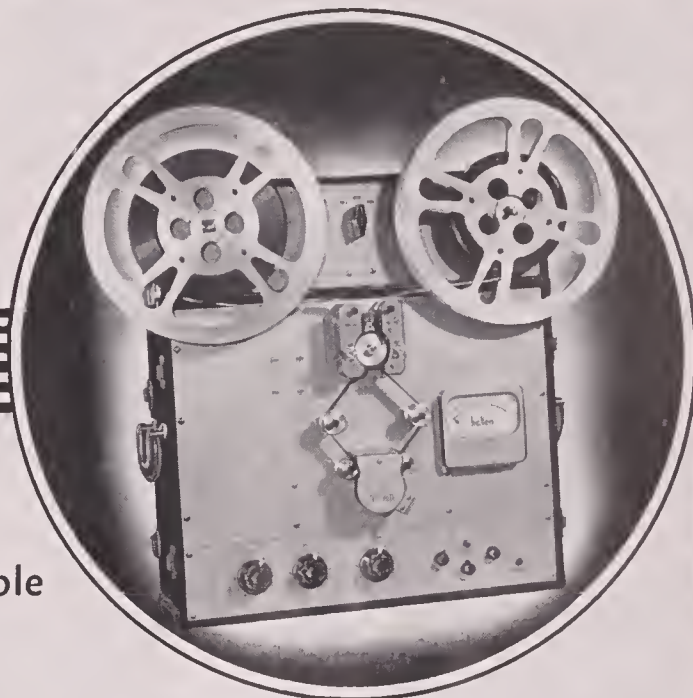
(6) *To tie together several separate compositions or set-ups into a single scene.*—Here, again, is a powerful application of the boom shot when tailored to complement patterns of action worked out by the director. In the dramatic film such shots concentrate audience attention by taking the viewer right along with the characters—moving in and out, up and down, as the shifting pattern of action dictates.

However, it is in the musical film

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that this type of boom shot really comes into its own. The trend started back in the early 30's, when the spectacular musical first came into vogue. At that time cameramen went wild with the boom—swooping and soaring, zooming in and out and even sideways until the audience was dizzy. In the ensuing years these techniques have become refined until we now have the smooth type of boom shots seen in musicals like "Singin' In The Rain," and magnificent ballet sequences such as those in "The Red Shoes" and "An American in Paris."

Through the years technological developments have kept pace with the visual demands of the industry in creating boom effects. An outstanding example is the "amphibious" boom developed at M-G-M to film the Esther Williams pictures. This is the famous mechanism that can soar about in the air and suddenly dive underwater for continuous filming of a wet-and-dry production number.

The latest development from the cam-

era department of the same studio is a new self-propelled automotive camera boom with the camera operator in complete control of all panning and elevating moves.

The 18-foot arm, mounted on a conical hydraulic turret, may be operated in regular manual fashion from the rear of the boom, or by means of levers from the ground. Every move from ground level to 25-foot elevation is controlled by the camera operator through a pistol grip similar to that operating tank turrets and aerial gunnery mounts.

Designed by Gil Casper of the M-G-M transportation department and his partner, Ray Van, the boom has a road speed of 60 miles per hour, eliminating previous moving by truck. A six-wheel drive assures access to rugged locations with a special self-levelling device built in to compensate for uneven ground.

The new boom is being used for the first time in the Texas location shooting of the Dore Schary production, "Take The High Ground."

ANIMATION STAND

(Continued from Page 162)

tion. We did this because we were running into more and more work where it was necessary to move components of the art. Cementing, stapling or other fastening methods were impractical and sometimes impossible.

To be objective about it, the vertical track arrangement was a dismal failure. We ran into age-old laws of physics that prevented us from ever running the camera up or down without correcting for the change in angle of the counterweight wire. The net result was that the device was absolutely useless for any zooms, unless they were single framed.

Sometimes failure teaches more than success and, if nothing else, we had learned that the prime requirements of any vertical animation stand are rigidity, smoothness of operation, rigidity, positive control and *rigidity!* The one thing you don't have to have is portability. Once in position, an animation stand is usually there to stay.

At this point, we decided to bypass any more makeshift devices, including such temptations as lathebeds, and go ahead and draw up our own plans for a genuine piece of equipment built especially for the job.

We took our sketches to the Valor Tool & Machine Company in Dearborn, Michigan. Admittedly, we are fortunate in being located close to what must be the center of the machine tool industry, and we were the benefactors of much good help and advice by engineers who were more than ordinarily interested in our problem. Nevertheless, the ultimate

design is simple in nature and the chances are very good of its being duplicated at almost any well-equipped machine shop in the country.

Basically, the stand consists of two six foot precision-ground steel rods sunk in a heavy rectangular base and joined at the top by a bar that supports two pulleys. A steel plate, drilled to carry a Hi-Hat, travels up and down these rods on four bronze sleeve bearings. A strong flexible steel cable is attached to the plate and goes over the pulleys to a counterweight.

Now for the details: the camera plate is moved up and down on the rods by turning a twelve inch wheel. Its axle carries a small gear which engages the teeth of a rack. This geared drive gives positive control of the camera movement and provides for a great range of speeds. Small rubber wedges placed in the vertical bar can be used to stop the travel of the camera at a predetermined distance from the artwork table. The artwork table itself is also geared so that it can be raised or lowered to suit the convenience of the operator. The table is attached by diagonal braces to a steel plate similar to the camera plate. Both the camera plate and the table plate can be locked in any position by tightening knurled screws which press bronze braking blocks against the rods. The plain artwork board shown can be interchanged with a board with standard animation registration pins and hinged glass and a cutthrough for a light box. The base is aluminum and equipped

with three heavy-duty casters. Four men cannot lift this machine off the ground, so the casters were necessary in order to move it at all. Four levelling screws raise the base so that the casters clear the floor.

The entire unit can be completely disassembled with standard tools. Each part is code-numbered to match it up with the adjoining part. Many of the components are stock items. The shafting, the control wheels, the rack, the pulleys, wheels and many other parts are available ready-made. It might be noted that the pulley pins have to be of hardened and precision ground dowel. Our first pulley pins burred up because of the great weight that they carry.

We are frank to admit that there is room for improvement. One of the men at the machine shop bet that we would put an electric motor drive on the camera plate within the next six months. We are investigating mechanical or electric follow focus mechanism. Another refinement being considered is a geared left and right movement for both the camera plate and the artwork surface. So far, however, we have discovered only one serious error in our planning. We now conclude that the raise and lower feature of the table is an unnecessary luxury. It added to both the weight and the cost. We feel, nevertheless, that we've come up with a handsome, simple working tool that will soon pay for itself in hours saved and quality of work delivered.

The total cost of duplicating this stand will undoubtedly vary from one section of the country to another. Barring any major additions to the basic design, however, it would be safe to say that it should not exceed fifteen hundred dollars. We believe that this is not too much to pay for a unit that is a necessity for the professional producer and which performs many of the functions of equipment that costs many times that figure.

SET, SIGHT, AND SHOOT!

(Continued from Page 175)

scratchproof grey crinkle enamel with polished aluminum trim. The gears of the mechanism, which is governor controlled, are hobbled (machine cut) throughout.

All in all, it's a handy palm-sized 35 ounces of camera with a small-size price tag. This is just \$49.95 including Federal excise tax. If you'd like a top grain London tan cowhide sheath case for the camera, that'll cost you an additional \$4.95.

The "220" makes its debut the first of April in camera stores throughout the country.

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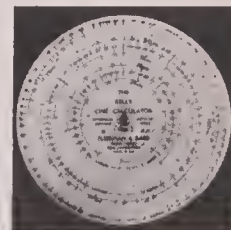
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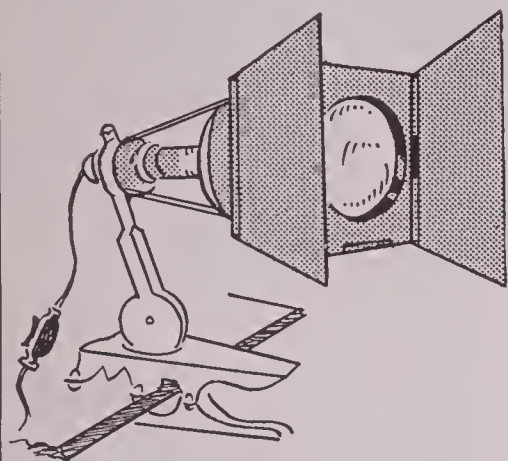


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FILMING "RETURN TO PARADISE"

(Continued from Page 157)

too heavy to be practical. Search for lighter lumber revealed a supply of Oregon pine planks; this the company purchased and from it Hanks' crew assembled new dolly tracks. In cutting the planks to the required length, one-foot lengths were trimmed and put aside for wedges or "cribbing." While the carpenters were busy putting the tracks together, the company chef came upon the blocks and gathered them up for firewood.

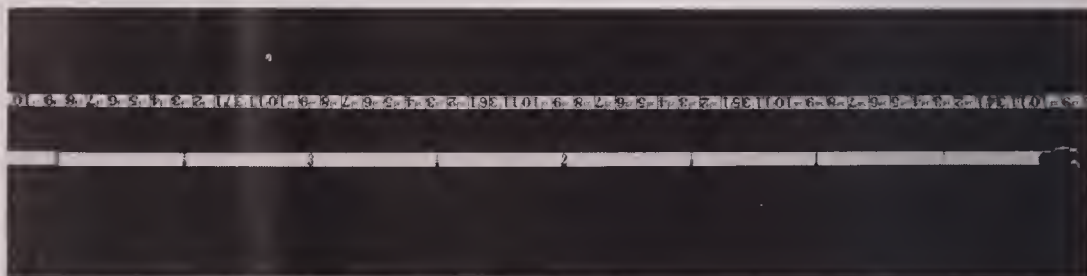
Because of the dense tropical forestation on Samoa, the use of booster lights was a must for almost every exterior shot. One of the unique things about this assignment was the fact that despite its general outdoors story line, artificial lighting made up part or all of the illumination for every scene, indoors and out. At first it was considered that daylight could be used in shooting some scenes inside the native dwellings or fales, which have roofs but no permanent sides, except for flexible mats which are kept rolled up most of the time. The roofs extend down to within five feet of the ground, shutting out much of the direct daylight that might otherwise reach the interior. For shoot-

ing scenes in the fales, artificial illumination was employed entirely. "We brought along no 'Brutes,' said Hoch, so we had the men convert 170's to take the larger 'Brute' carbons. The converted lamps worked quite satisfactory, as they also did when we were shooting interiors in the dance hall, grocery store, and shipping office in Apia. Here we used arcs almost altogether, drawing current from the lone generator which had been shipped along with our camera equipment."

There was an interesting sequence of shots to be filmed in rain, but as natural rainfall could not be counted upon to occur when needed nor to give the desired pictorial effect, the company resorted to artificial rain. This was quite a problem away from the studio where there is special rain-making equipment available. But the resourceful technicians put together several lengths of pipe, found a water pump, and contrived a rain-making machine that utilized water pumped from the sea.

This operation introduced a brand new set of problems—keeping the salt water and spray away from the camera. Despite all the covering that could be

Improved Focusing Tape



BOTTOM TAPE with marks every 6 inches replaces old-style tape measures used by camera assistants in measuring distance for focus. New tape, minus clutter of inch marks, is easier to read.

THE STANDARD measuring tape, commonly used by cameramen or assistants to measure distances in setting lens focus, is just one of the many tools of the cinematographer that too long has been considered "good enough." But in this day of specialized tools and efficiency, there is need for a tape more suitable to the cinematographer's needs.

The standard tape measure reads numerals from right to left, gives us a conglomeration of upside down numerals and far too many intermediae markings which are confusing. Moreover, there should be measure marks on both sides of the tape. These findings led me to design a tape more suitable to my use.

Beginning with a blank 50-foot tape,

which I purchased on special order from a manufacturer, I rubber-stamped markings at every half-foot, as shown in illustration above. Foot and half-foot figures are quite adequate when it comes to measuring distances for photography.

The marks are right side up and on both sides of the tape. I used steel tape because fabric tapes tend to shrink and soon frays out from excessive use. Beginning at the tip, marks were placed every six inches up to the 25-foot mark; then I started over again at 1/2, 1, 1/2, 2, etc., for the second 25 feet of the tape. The tape was then lacquered to protect the rubber-stamped markings.

—Maury Kains, Los Angeles.

provided, the camera suffered some ill-effects. Salt water and corrosion took their toll. The rackover mechanism tightened up, the pan and tilt began to stick, and the company soon was paying the price in damaged equipment of shooting in the tropics with camera equipment designed essentially for the sound stage.

Another thing Hoch and his crew learned about salt water and salt laden air was the disastrous effect they had on reflectors surfaced with gold leaf. For a number of scenes filmed in the lagoon, native assistants waded out into the surf to hold reflectors above their heads. Invariably some of the men would tire and let drop the reflectors into the water. The effect of the salt water on the gold leaf was almost instantaneous—the leaf would tarnish or turn dark brown on contact with the salt water.

The aerial shots of the plateaus on Fiji, which comprised the introductory sequence of the production and which pictured the group of islands surrounding Samoa, were shot during the last two days of the company's stay at the island. Filming began on Sunday, when all local stores were closed, and Hoch soon found himself in need of supplies necessary to begin shooting. His chief problem was a suitable camera support within the plane that was to take him aloft for the long shots. As before, resourceful natives came to the rescue. At the local airport, an attendant rustled up a 30-foot length of clothesline, several two-by-fours, plus a quantity of old salvaged nails, which had to be straightened out before they could be used. But the camera platform was quickly constructed and the door of the plane removed to permit shooting.

Movement of the camera, however, was quite restricted; there was no room to pan or tilt. But the pilot solved the problem in a unique way. "He seemed to have an uncanny grasp of the mechanics of cinematography," said Hoch. "and suggested that we let him do the panning and tilting for us by maneuvering the plane. When we were in the air and were ready to shoot a scene of this kind, on a given signal the pilot would bank the plane or line it up for a straight aerial dolly shot with remarkable precision."

Perhaps the real headache for the company occurred on the next to last day of shooting. The rainy season had set in. Matautu is located on the wet side of the island. Between the wet and dry sides there is a difference of approximately 20 inches of rainfall per month. This meant the company had to move promptly to the dry side of the island in order to wind up the rest of the scenes. The wharves and piers the

(Continued on Page 191)



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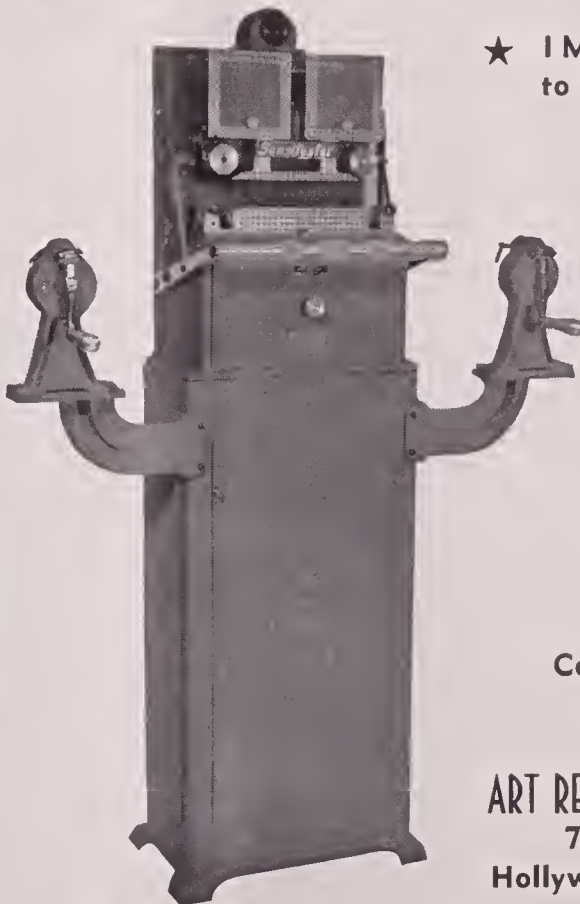
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Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

★ ★ ★ ★

★ ★ ★ ★

Allied Artists

- HARRY NEUMANN, "Bowery Nights," with Leo Gorcey, Huntz Hall, Angela Greene, and The Bowery Boys. Edward Bernds, director.

Columbia

- HAL MOHR, "The Wild One," (Kramer Co.) with Marlon Brando, Mary Murphy, Lee Marvin, Peggy Maley, Yvonne Doughty. Laslo Benedek, director.
- FLOYD CROSBY, "The Man Who Lived Twice," (3-Dimension) with Edmond O'Brien and Audrey Totter. Lew Landers, director.
- BURNETT GUFFEY, "From Here To Eternity," with Monegomy Clift, Burt Lancaster, Deborah Kerr, Frank Sinatra, Donna Reed. Fred Zinnemann, director.
- WILLIAM BRADFORD, "Last Of The Pony Express," (Gene Autry Prod.) with Gene Autry and Smiley Burnette. George Archainbaud, director.
- LESTER WHITE, "Renegade Canyon," (Technicolor, 3-D) with John Derek. Ray Nazarro, director.

Metro-Goldwyn-Mayer

- GEORGE FOLSEY, "All The Brothers Were Valiant," (Technicolor) with Robert Taylor, Stewart Granger, Elizabeth Taylor, Betta St. John, James Whitmore, Keenan Wynn, and Kurt Kasznar. Richard Thorpe, director.
- FREDERICK YOUNG, "Mogambo," (Technicolor) (Shooting in England and Africa) with Clark Gable, Ava Gardner, Grace Kelly, and Donald Sinden. John Ford, director.
- JOHN ALTON, "Take The High Ground," (AnascoColor) with Richard Widmark, Karl Malden, Jerome Courtland, Robert Arthur, Richard Brooks, director.
- RAY JUNE, "Easy To Love," (Technicolor) with Esther Williams, Van Johnson, Tony Martin, and John Bromfield. Charles Walters, director.
- PAUL VOGEL, "Arena," (3-D, AnascoColor) with Gig Young, Robert Horton, Polly Bergen, and Jean Hagen. Richard Fleischer, director.
- HAROLD LIPSTEIN, "Big Leaguer," with Edw. G. Robinson, Vera-Ellen, Jeff Richards, William Campbell, and Richard Jaeckel. Robert Aldrich, director.
- JOSEPH RUTTENBERG, "The Great Diamond Robbery," with Red Skelton, Cara Williams, Dorothy Stickney, Kurt Kasznar, and James Whitmore. Robert Z. Leonard, director.

Paramount

- LOYAL GRIGGS, "Elephant Walk," (Technicolor) (Shooting in Ceylon) with Vivien Leigh, Dana Andrews, Peter Finch, Abraham Sofaer, and Mylee Haulani. William Dieterle, director.
- LIONEL LINDON, "Those Sisters From Seattle," (Pine Thomas Prod., in Paravision 3-D, Technicolor) with Rhonda Fleming, Gene Barry, Agnes Moorehead, Jean Parker, Guy Mitchell, Teresa Brewer, The Bell Sisters, Roscoe Ates, Lewis R. Foster, director.

R.K.O.

- WILLIAM SNYDER, "Second Chance," with Linda Darnell and Robert Mitchum. Rudy Mate, director.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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- NICK MUSURACA, "Arizona Outpost," with Dale Robertson and Arthur Hunnicutt. Alfred Werker, director.

Republic

- JOHN RUSSELL, "The Champ From Brooklyn," with Alex Nicol, Audrey Totter, Charles Winninger, Hope Emerson, Joseph Weisman, Jess White, Grant Withers, and Eddie Waller. William A. Seiter, director.

20th Century-Fox

- LEO TOVER, "Blueprint For Murder," with Joseph Cotten, Jean Peters, and Gary Merrill. Andrew L. Stone, director.
- LUCIEN BALLARD, "Inferno," (3-D; Technicolor) with Robert Ryan, William Lundigan, and Rhonda Fleming. Roy Baker, director.
- LEON SHAMROY, "The Robe," (Cinemascope, Technicolor) with Richard Burton, Jean Simmons, Victor Mature, Michael Rennie, Dean Jagger, Betta St. John, Jeff Morrow, Michael Ansara, and Nicolas Koster. Henry Koster, director.

- HARRY JACKSON, "The Kid From Left Field," (3-D) with Dan Dailey and Anne Bancroft. Harmon Jones, director.

- JOE MACDONALD, "How To Marry A Millionaire," (Cinemascope, Technicolor) with Betty Grable, Marilyn Monroe, William Powell, Lauren Bacall, Rory Calhoun, David Wayne, and Cameron Mitchell. Jean Negulesco, director.

- MILTON KRASNER, "Vicki," with Jeanne Crain, Jean Peters, Elliot Reid, Casey Adams, and Richard Boone. Harry Horner, director.

Universal-International

- CLIFF STINE, "It Came From Outer Space," (3-D) with Richard Carlson, Barbara Rush, and Charles Drake. Jack Arnol, director.
- IRVING GLASSBERG, "Walkin' My Baby Back Home," (Technicolor) with Donald O'Connor, Janet Leigh, Buddy Hackett, and Scat Man Crothers. Lloyd Bacon, director.
- MAURY GERTSMAN, "Back To God's Country," (Technicolor) with Rock Hudson, Steve Cochran, and Hugh O'Brian. Joseph Pevney, director.
- WILLIAM DANIELS, "Brady's Bunch," with Maureen O'Hara, Jeff Chandler, Susan Ball, John McIntire, and Charles Drake. George Sherman, director.
- RUSSELL METTY, "Three Were Renegades," (Technicolor) with Audie Murphy, Lori Nelson, Russell Johnson, and Madge Meredith. Nathan Juran, director.

Warner Brothers

- WILFRED CLINE, "Calamity Jane," (Technicolor) with Doris Day, Howard Keel, Allyn McLerie, Dick Wesson, and Philip Carey. David Butler, director.
- ED DUPAR, "The Eddie Cantor Story," (Technicolor) with Keefe Brasselle, Marilyn Erskine, Aline McMahon, Gerald Mohr, Arthur Franz, Will Rogers, Jr., and William Forrest. Alfred E. Green, director.
- TED McCORD, "Sulu Sea," with Burt Lancaster, Virginia Mayo, and Hayden Rork. Arthur Lubin, director.
- PEVERELL MARLEY, "House of Wax," (3-D, WarnerColor) with Vincent Price, Frank Lovejoy, Phyllis Kirk, Paul Picerni, Carolyn Jones. Andre de Toth, director.
- CARL GUTHRIE, "Three Sailors and a Girl," (Technicolor) with Jane Powell, Gordon McRae, Gene Nelson, Sam Levene, and Jack Leonard. Roy Del Ruth, director.
- ARCHIE STOUT, "Island In The Sky," (Wayne-Fellows) with Lloyd Nolan, Andy Devine, Walter Abel, William A. Wellman, director.
- SIDNEY HICKOX, "Blowing Wild," (United Pics.) with Gary Cooper, Barbara Stanwyck, Ruth Roman, and Anthony Quinn. Hugo Fregonese, director.
- ROBERT BURKS, "The Boy From Oklahoma," (WarnerColor) with Will Rogers, Jr., Nancy Olson, Lon Chaney, Jr., Wally Ford. Michael Curtiz, director.
- PEVERELL MARLEY, "The Burning Arrow," (3-D, WarnerColor) with Guy Madison, Frank Lovejoy, and Vera Miles. Gordon Douglas, director.

Independent

- ERNEST LASZLO, "The Moon Is Blue," (Preminger-Herbert Prod.) with William Holden, David Niven, Maggie McNamara,

Dawn Addams, Tom Tully, and Fortunio Bonanova. Otto Preminger, director.

• JAMES WONG HOWE, "Jennifer," (Three-fellows Prods.) with Ida Lupino and Howard Duff. Bernard Girard, director.

• JOSEPH BIROC, "Donovan's Brain," (Dowling Prods.) with Lew Ayers, Gene Evans, and Nancy Davis. Felix Feist, director.

• JOHN BOYLE, "The 3-D Follies," (Sol Lesser Prods.) (3-D, Eastman Color). William Menzies, director.

"RETURN TO PARADISE"

(Continued from Page 189)

company had erected plus the boat used in the picture by Gary Cooper had to be moved to the other side of the island. Each hour's delay increased the hazards for the company, not only from the standpoint of completing the picture but also because plane passage had been booked; and to have missed the plane would have meant being stranded on the island for another several weeks.

Both crew and the natives worked feverishly to load and move equipment, props, etc. At the last moment, as the boat was being loaded onto a truck, the sails were found missing. Some of the natives were suspected. Whether it was their idea of a joke, or a plain case of theft, the results were the same for the company — exasperation mixed with frustration. Producer Warth called the island's 44 chiefs together and laid down the law: the sails must be produced promptly, he said, "or else." The "or else" meant reporting the incident to the Apian police. The chiefs became indignant but promised to do what they could to turn them up.

Hoch and producer Warth never expected to see the sails again. They arranged to have a new set made without delay. The town's lone sailmaker, a 70-year old native was routed out of bed, given the necessary sail cloth, and put to work tailoring a new set of sails, working in light furnished by 15 Coleman lanterns supplied by the film company's prop man.

In the meantime, Hoch was virtually biting his nails trying to figure out how he would "age" the sails to make them match the missing ones. Luckily, this never had to be done. At 4 the next morning, the chiefs returned to the village with the missing sails. Tossing the canvas on the ground, one of the old fellows came forward and handed Hoch a bill for services: 5 pounds for bus hire plus 2 shillings per hour for 5 hours for each of his 44 men.

"It was a happy finale," said Hoch. "It proved that the Samoan natives are not only canny business men but also have a sense of humor. And having the burden of sail-aging lifted from my shoulders, I was in quite the mood to enjoy their little joke." **END**

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THE MAGNASYNC RECORDER

(Continued from Page 165)

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was to fill the soundman's last requirement. The finished product is a portable mechanical unit weighing 24 pounds in a case measuring 8" x 11" x 11". The portable amplifier is housed in a matching case with a total weight of 15 pounds. In addition, each case is made with a generous compartment for cable storage. The overall weight of 39 pounds is thus divided into a balanced load for easy handling.

The sw-602 film transport is engineered around the dual-flywheel principle which was originated by the designers of the Magnasync*.

All components of the transport are integrated with a rugged master casting which is stressed to withstand a tremendous amount of shock. This construction has two important additional advantages. (1) Flywheel quills, sprocket pads and other important components are cast into the machine and will never lose their critical alignment, and (2) this design lends itself to quantity production with a considerable reduction in end product cost. The film handling mechanism is designed to instantly recess back into the case making the portable case no larger than the basic film transport mechanism. The reel arms extend to accommodate a full 1200 foot roll of recording film. Overdrive devices on both supply and take-up arms, combined with the unique film sprocket pad assembly, makes it possible for the operator to reverse the direction of film transport *instantly* without losing the tight loop. The reset-type footage counter subtracts as well as adds.

The 16mm Magnasync equipment is made in standard models for either center tracking (double perforated film) or edge tracking (single perforated film); 17½mm equipment is available for either Academy Standard tracking (center of track 105 mills from inside edge of sprocket holes) or "Ryder" tracking (center between sprocket holes and edge of film).

Standard sw-602 (16mm), or sw-702 (17½mm) recorders are furnished with single-phase 60-cycle, 110-volt salient pole synchronous motors. For the producer who uses a camera with a multi-duty motor, the Magnasync is furnished with a 3-phase, 60-cycle 220-volt synchronous motor. With this arrangement the multi-duty camera motor supplies the power to drive the recorder motor in perfect synchronization. This method of "satellite" or "piggy-back" interlock has become increasingly popular with major studio sound men, as well as independent producers. An additional advantage with this "satellite" interlock

TEST BAND (IN C.P.S.)	Low Period "Wow" Region
0 to 1.....	0.06%
1 to 2½.....	0.02%
2½ to 4½.....	0.01%
4½ to 7.....	0.015%
7 to 12.....	0.02%
12 to 22.....	0.03%
Sprocket Hole Modulation	
22 to 34.....	0.06%
High Frequency "Flutter" Region	
34 to 50.....	0.09%
50 to 80.....	0.12%
80 to 130.....	0.12%
130 to 200.....	0.10%

FIG. 4—Flutter-bridge tests made of the Model SW-602 produced logged results shown above; 16mm film was used at 36 fpm.

rests in the fact that the Magnasync amplifier may be ordered for battery operation and the entire sound and camera system is fully battery operated. For the crew using 110-volt, 60-cycle synchronous motor to drive the camera, the standard Magnasync and camera are operated from regular line power, or for field work, the Magnasync portable power supply furnishes the inductive load power to drive the camera and recorder as well as the filtered power to operate the amplifier.

The Magnasync amplifier is completely self-contained in the one chassis. The Record Section includes a full 105 db of gain in the microphone stage through a 90 db shielded input transformer. In addition to the record gain control, a convenient HI-LOW level switch is provided to take care of wide variations in input level. The bias oscillator section is housed in independent, shielded containers mounted above the chassis. The playback section, with variable volume control, feeds into three alternative outputs: (1) a balanced 600 ohm, zero level line which may be fed into the input of an optical recorder or theatre sound system; (2) unbalanced output for earphone monitor, and (3) 4- to 8-ohm, 1-watt output for speaker monitor. A FILM-DIRECT switch gives the operator the option of listening to the direct amplifier monitor or the recorded signal from the film.

A well balanced dialogue equalization network is built into the record section and may be thrown IN or OUT at the option of the operator. This network develops a gradual roll-off on the bass end of the response curve to brighten dialogue recording. Both the record and playback levels are maintained with a 4½", "A" scale V.U. meter.

The rack-mount version of the Magna-

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sync is provided in several combinations. One example is illustrated in figure 3. This Model SW-602-RP is the rack-mount mechanism mounted in a portable case. Employing torque motors through clutch overdrives, this version can accommodate 1600-foot reels or 2000-foot rolls of film. In the *hold* position, the torque motor control switch energizes both motors to provide constant tension for supply and take-up. Other positions develop the *fast forward* and *fast reverse* torque.

The playback dummy (film phonograph) is identical with the SW-602-R except that it is equipped with play head only and is furnished with a rack-mount equalized playback preamplifier. Multiples of "R" series Magnasync recorders or dummies can be provided, interlocked and housed in enclosed racks for studio

installation. The most popular of this series is the SW-602-D-3 which consists of three standard dummies with playback preamplifiers. With this equipment the producer can assemble his dialogue, music and sound effects on separate interlocked dummies and mix them onto a master track. (Use technique and the advantages of this method will be discussed in an article to follow.)

Magnasync engineers work on the principle that the producer needs "answers" as well as equipment. Continuous research and development is taking place to provide these answers. The objective is to help the motion picture producer make more and better films with a worthwhile increase in his margin of profit.

(*S.M.P.E. 63rd semi-annual convention May, 1948. Santa Monica, Calif.)

HOMEMADE GADGETS

(Continued from Page 173)

and perhaps even horizontally, with a minimum of effort. In the reflector unit illustrated the reflecting surface is 2'0" x 3'0". The mounting frame is made from light-weight strap metal with provisions for a vertical movement of the reflecting surface.

Dolly shots, or scenes in which the camera follows a moving subject, give a professional touch to cine photography if well planned and carefully executed. The small tripod camera dolly illustrated (Fig. 6) is in the form of an "A" shaped frame of light weight metal, measuring about two feet on either side and across the bottom. Beneath the frame and at each corner are mounted small casters one-inch in diameter. On

top of the frame and at each corner are provisions for securing the tips of the legs of the camera tripod. With this arrangement the cameraman not only operates his camera but is able to push it around in the direction of his choosing. As this dolly is made with small casters it is useful only on a very smooth hard surface. Larger casters with rubber tires would improve the dolly's versatility and maneuverability.

The ideas outlined here as aids to better movie making are basic and as such are subject to modification and change. As they are adapted to individual needs, not only will the quality of your movies improve, but one's movie making will become more interesting.

Kinevox Stereo Sound System

LEN H. ROOS, ASC, president of Kinevox, Inc., Burbank, demonstrated the company's new stereophonic sound system last month to more than 200 studio executives and technicians at the Academy Award Theatre in Beverly Hills.

The demonstrated sound effects included that of planes, trains and a large symphony orchestra, the auditors in the darkened house getting a definite impression of movement from the sound of vehicles, etc. In filming, Roos' recorder puts three magnetic sound tracks through a single head on a tape simultaneously from three mikes placed at either side and in the middle of a scene. When played back, each track is fed into its corresponding speaker to give the stereophonic effect. In theatres, the three speakers are placed at the sides and the middle of the screen — at the

rear. So effective was the demonstration that the audience broke into spontaneous applause.

Roos' stereophonic recording and playback equipment weighs less than 150 pounds, and costs about \$3,500 plus microphones. The theatre equipment comprising three amplifiers, three speakers and a projection machine drive costs around \$5,000.

The new sound system is adaptable to regular, three-dimension and wide-screen films, and is an essential part of the later, including such systems as CinemaScope and Cincrama. Stereophonic sound also promises to open up a new field of short subjects in stereophonic sound only for playing in theatres during intermissions, etc., according to Mr. Roos.

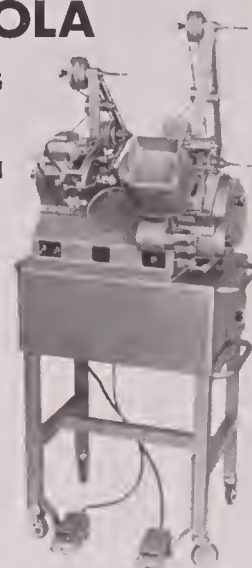
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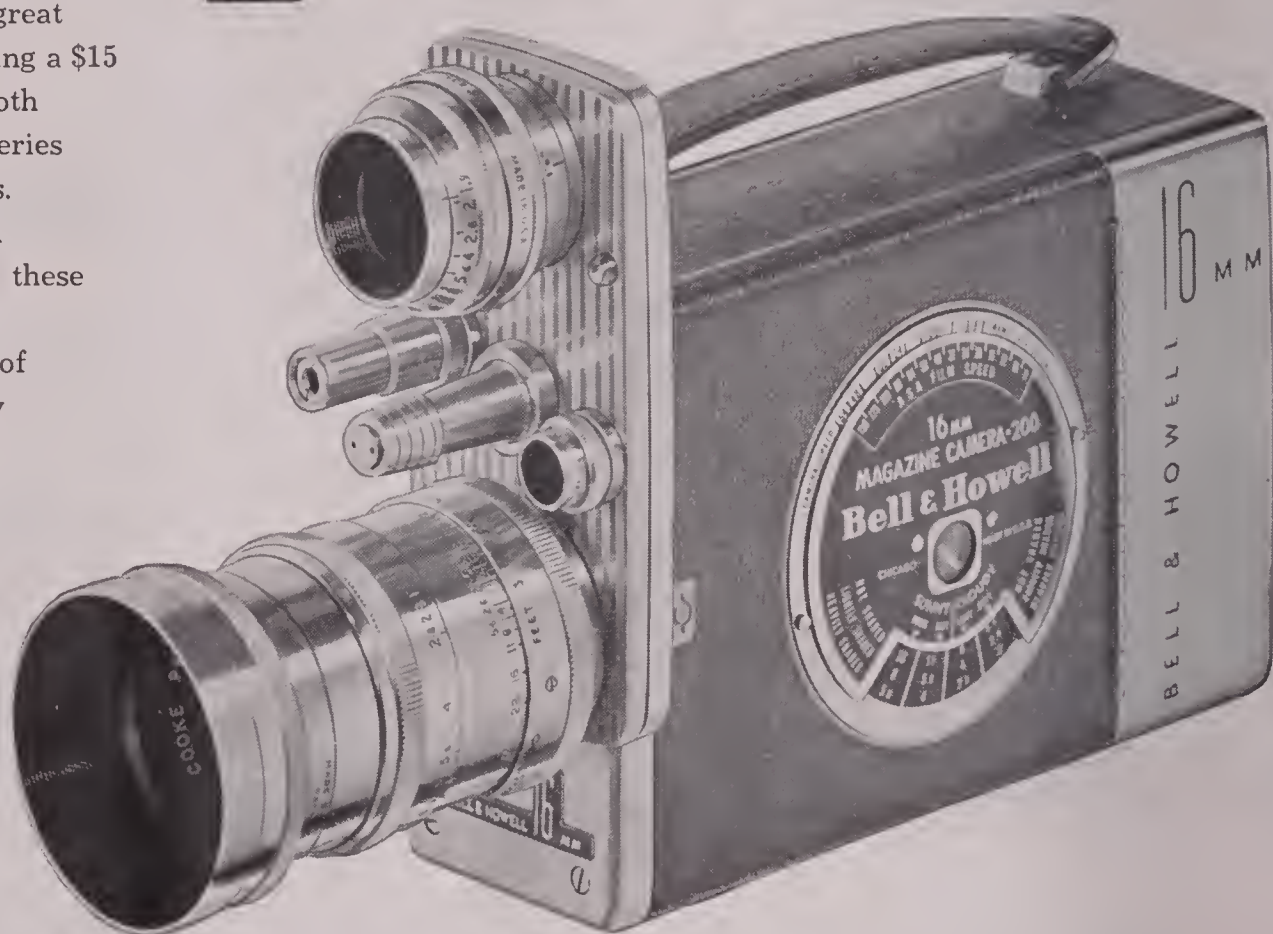
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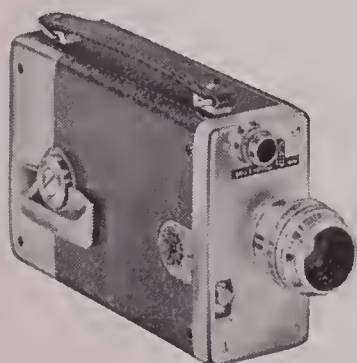
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THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

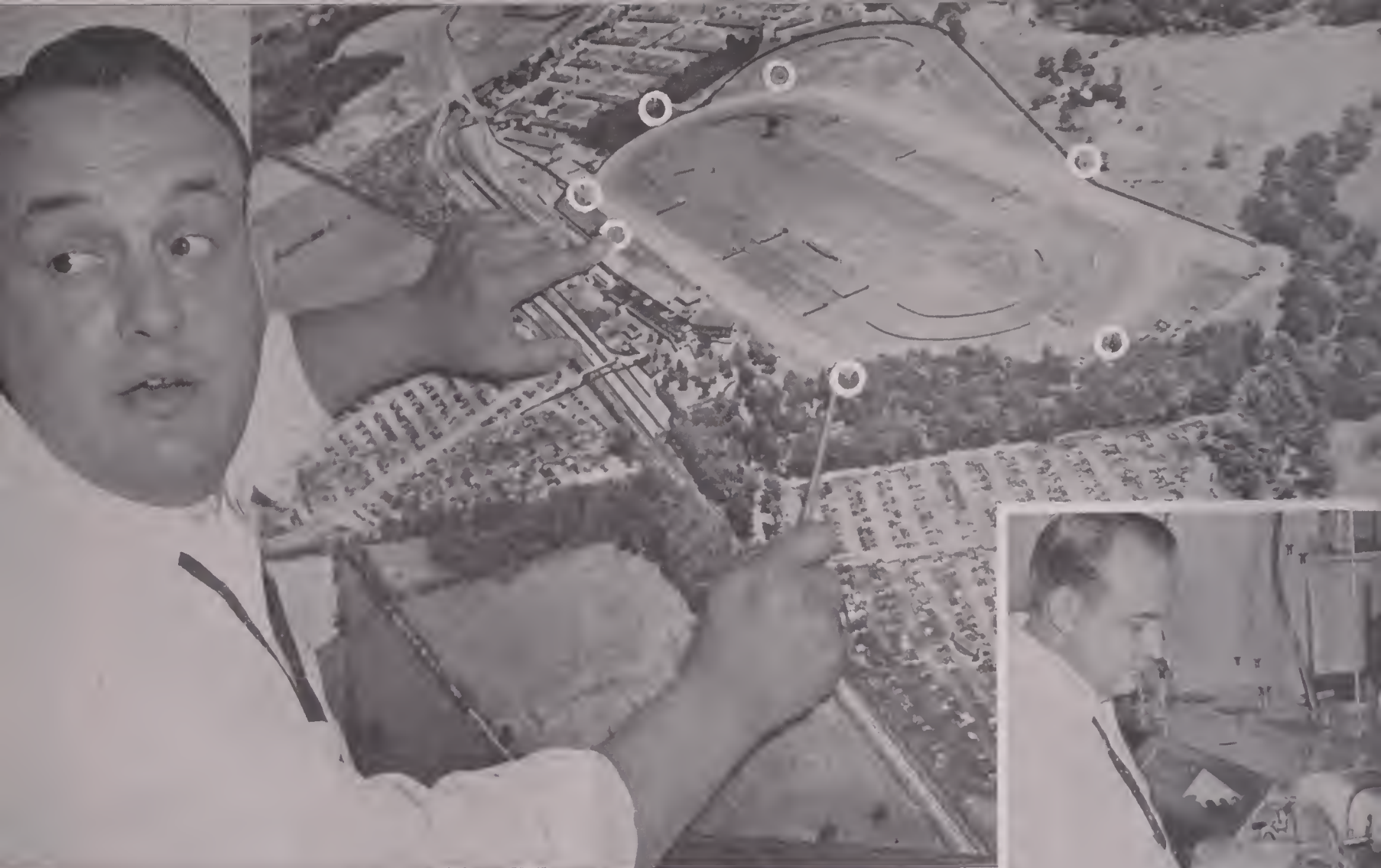
THEATRE
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In This Issue . . .

- 2-D, 3-D, Wide-screen or All Three
- The 3-D Photography of "House of Wax"
- Filming CinemaScope—The BIG Dimension

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Bernd indicates towers (circled) which are spotted around the track. Each shoots one portion of the race... speeds film to processing room. If race finishes at 2:31, film is ready for screening by 2:36!



His modern film processor quickly prepares the reels for projection.

Races screened from start to finish within 5 minutes

on Du Pont High Speed Rapid Reversal Pan!

Now race-track judges can check a race only five minutes after it ends! This new wrinkle in turf officiating, called the "Film Patrol," relies on 16-mm. film to record the entire event, *and* rapid reversal processing for swift projection. It enables track officials to study every detail... detect any violation... check their decisions.

Film for such exacting conditions must be fast... it must be super-hardened to hold its quality in high-temperature processing. After testing various films, Lester E. Bernd, veteran race photographer, has found that Du Pont Rapid Reversal Pan Films—improved Type 930 and Type 931—are ideal for the operation.

In his words: "The requirements of ultra-rapid reversal processing, with emphasis on uniformity of film, have always presented the problem of reticulation and staining, due to the high solution temperatures necessary.

I'm happy to report that new Du Pont 930 and 931 emulsions have more than met the challenge. These films permit a 3½-minute reversal process at temper-

atures over 100°F. with consistently excellent quality. We can screen any portion of the race five minutes after the finish."

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Racing... baseball... football... boxing... whatever the sport... day or night... you can depend on Du Pont Rapid Reversal Pan Films for faster, superior coverage. The same outstanding qualities that make the film ideal for the "Film Patrol" and processing under high-temperature conditions also make it excellent for all types of newsreel and TV work. Fine grain, long tonal range and

sharp gradation insure sparkling images for every action-packed event. Get in touch with your Du Pont Technical Representative for more information about Rapid Reversal Pan, or write to the nearest District Sales Office listed below. E. I. du Pont de Nemours & Co. (Inc.), Photo Products Department, Wilmington 98, Delaware. In Canada: Canadian Industries, Ltd., Montreal.

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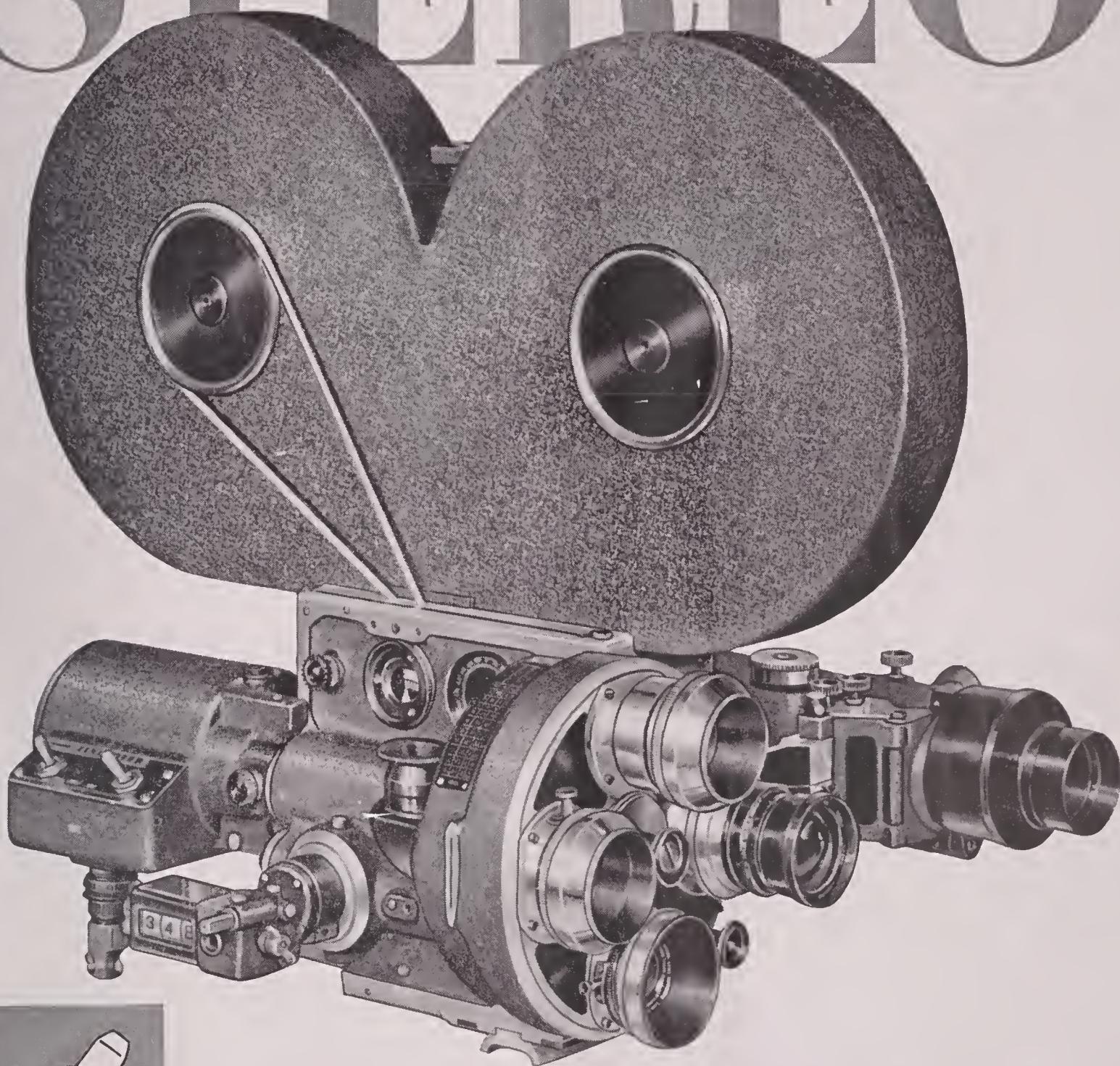


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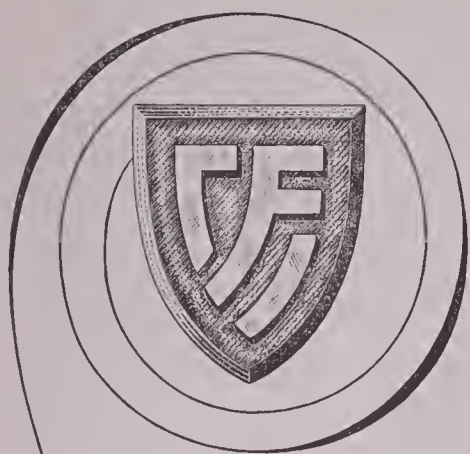


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THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF AMERICAN SOCIETY OF CINEMATOGRAPHERS

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ON THE COVER

ATOM BOMB TEST at Yucca Flat, Nevada, U.S.A. The man behind the motion picture cameras is director of photography Harry Perry, ASC, presently associated with USAF's Lookout Mountain Laboratory under command of Lt. Col. James L. Gaylord, USAF.

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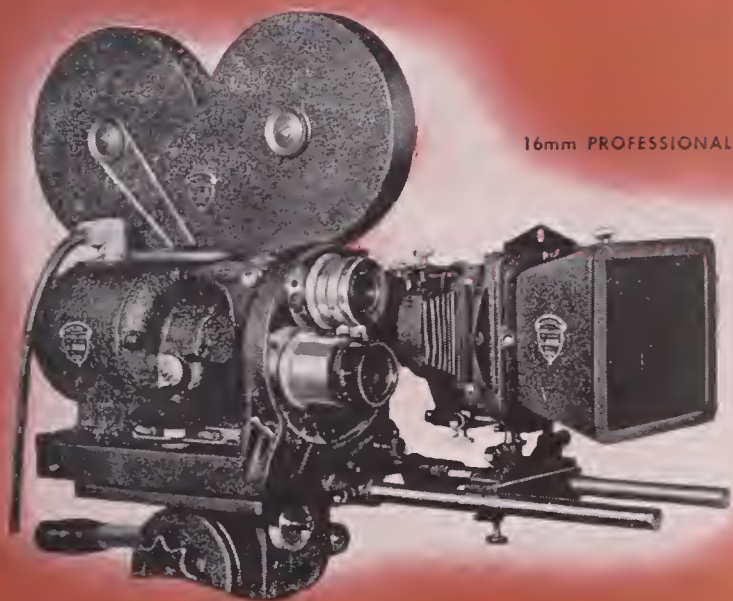
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Hollywood Bulletin Board



FREDDIE YOUNG (left) congratulates Charles G. Clarke on occasion of his re-election to presidency of American Society of Cinematographers last month. Young, a member of the ASC, is president of the British Society of Cinematographers.

ASC'S APRIL meeting was devoted to 3-D photography. Wm. F. Kelly of the Research Council gave an illustrated lecture on 3-D photographic technique. Friend Baker, demonstrated his newest 16mm 3-D system. Armin Hill, also of the Research Council, talked briefly regarding the new convergence calculator which he has developed for 3-D cinematography. The calculator, incidentally, is available from the Research Council.

KARL STRUSS, ASC, is in Italy photographing a 3-D picture for Ponte De Laurentiis Studios. He shot the first chapter of Sol Lesser's "3-D Follies" before leaving Hollywood.

JOSEPH BRUN, ASC, is shooting the "Joe Louis Story" in New York.

CELEBRITY — Archie Stout, ASC, who won on Oscar this year along with Winton Hoch, ASC, for the photography of "The Quiet Man," sees his photo hung on the ASC's "Wall of Fame" in the Society's clubhouse in Hollywood. Stout became the 33rd ASC member to win an Oscar.



THE ASC last month elected officers and board of governors for 1953. Re-elected to the presidency was Charles G. Clarke, whose first term in office as president was in 1948. This is the second time Clarke has been re-elected to continue in office a second term.

The new officers and board members are, in addition to Clarke: Fred W. Jackman, exec. vice-pres.; Arthur Edson, 1st vice-pres.; Milton Krasner, 2nd vice-pres.; Arthur Miller, 3rd vice-pres.; Wm. Skall, treasurer; John W. Boyle, secretary; and Robert deGrasse, sergeant-at-arms. Board: John Arnold, Lee Garmes, Alfred Gilks, Victor Milner, Hal Mohr, Ray Rennahan, Joseph Ruttenberg, and Leon Shamroy. Alternates: Joseph Biroc, Wm. Daniels, Paul Eagler, Sol Halprin, Winton Hoch, Charles Lang, Joseph LaShelle, Sol Polito, John Seitz, and James Van Trees.

PHILIP TANNURA, ASC, last month was host to an increasing number of eastern and foreign TV executives on the "Burns and Allen Show" sets, where they had come to learn about quality TV film photography.

WM. N. WILLIAMS ASC, was sent to England last month by Paramount to head 2nd unit photography of the new Danny Kaye picture, "Knock on Wood." He will do special transparency backgrounds for Farciot Edouart's process department at Paramount.

RENO Chamber of Commerce for first time this year eliminated the Cinematography category in its annual Silver Spurs Awards. "High Noon" won this year's SS award for best western picture; Gary Cooper for the best actor.

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PORTABLE MICROPHONE BOOM

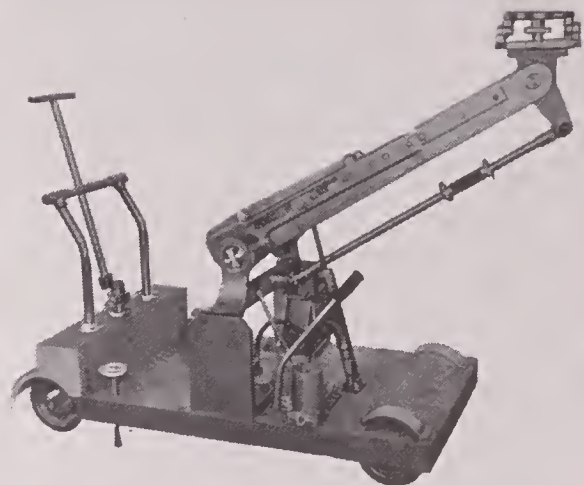
For Studio or on Location. Light-weight — collapsible — for TV and motion picture production. Sturdy construction. Boom telescopes 7 to 17 ft. Rear handle for directional mike control. A remote control permits 360° rotation of the microphone. Operator can push the boom and oper-

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Swivel seat. Adjustable leveling head. Seat for assistant. In-line wheels for track use. Steering wheel, rigid floor locks. Hand pump or combination hand and motor pump. Easily transported in a station wagon. Fits through a 28" door.

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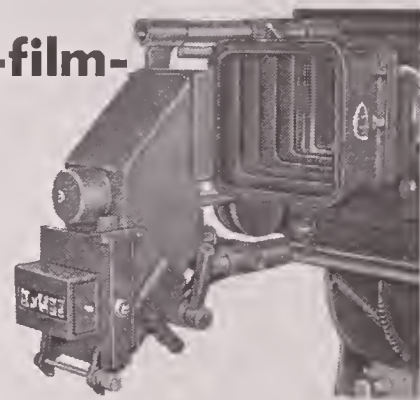
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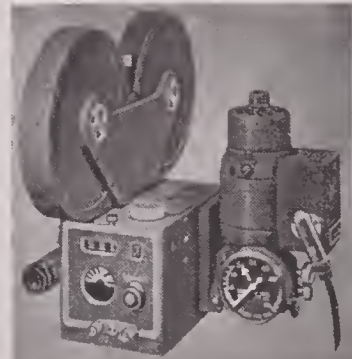
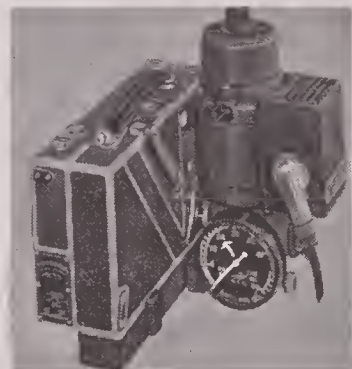
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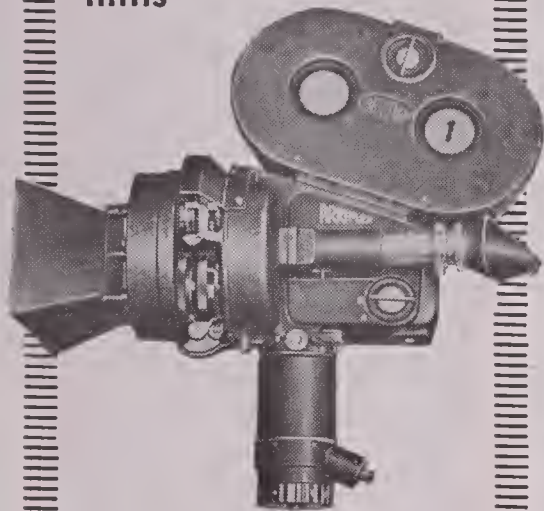
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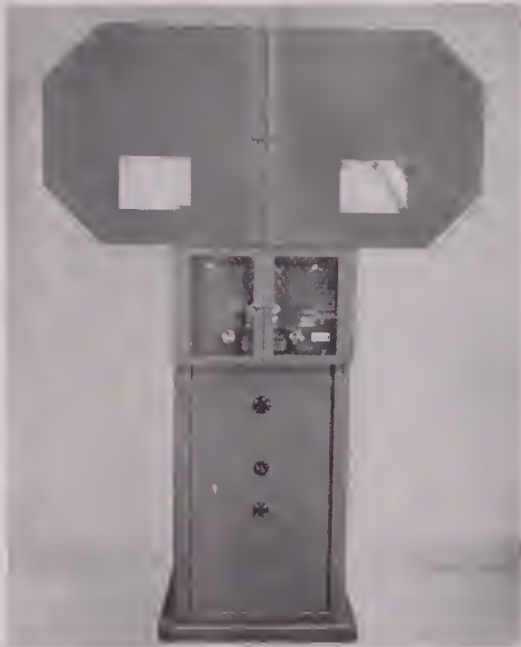
Equipped with bright, right-side-up image finder, $6\frac{1}{2} \times$ magnification. Solves all parallax problems. 3 lens turret. Variable speed motor built into handle operates from lightweight battery. Tachometer registering from 0 to 50 frames per second. Compact, lightweight for either tripod or hand-held filming. Takes 200' or 400' magazine. Write for free folder.



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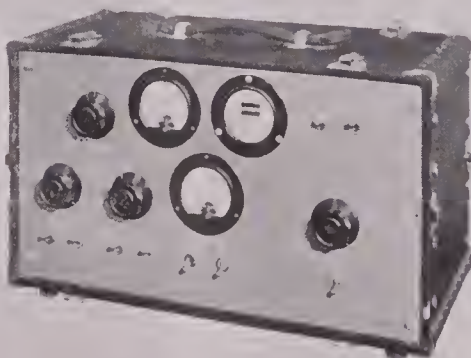
in equipment, accessories, service

Stereo-sound Equipment—Kinevox, Inc., pioneer developers of magnetic sound equipment for the motion picture industry, last month unveiled newest addition to its stereophonic sound equip-



ment for theatres. Pictured is the Kinevox stereophonic sound theatre playback unit.

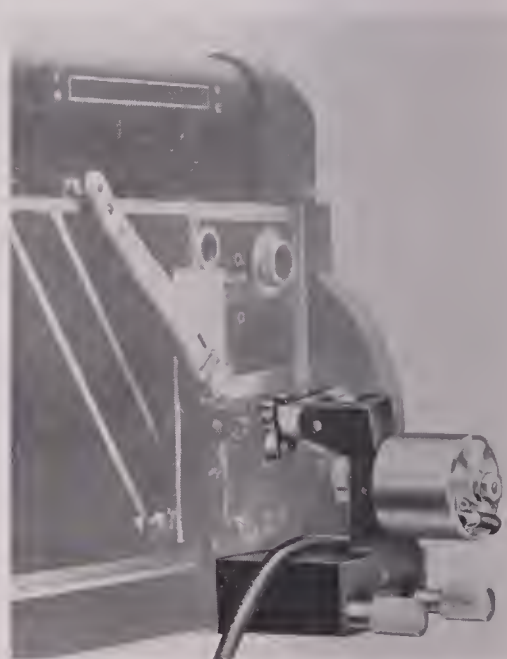
The single-unit rack cabinet accommodates 5000-ft 35mm reels, the playback mechanism, pre-amplifiers, power amplifiers, etc. Units are now in quantity production. Complete information and prices may be had by writing the company at 116 So. Hollywood Way, Burbank Calif., and mentioning *American Cinematographer*.



Camera Control—Stancil-Hoffman Corp., 921 No. Highland Ave., Hollywood 38, Calif., announces a new field camera control unit that makes possible battery operation of two 35mm or 16mm cameras and film recorders. Special DC camera motors are used with manual speed controls. These have additional windings which furnish either 115-v

single-phase or 220-v 60-cyc. 3-phase alternating current which drives recorder in synchronism with picture. A prototype unit was used by Arch Oboler in shooting "Bwana Devil." Further information may be had by writing the manufacturer and mentioning *American Cinematographer*.

Single-frame Release — PAR Products Corp., 926 No. Citrus Ave., Hollywood 38, Calif., announces a new single-frame release solenoid for the Eastman Cine Kodak Special I and II. The sol-



noid provides easy pushbutton operation of the single-frame release, simplifying animation and other single-frame operations. Use of the solenoid eliminates camera unsteadiness. The attachment can be used on Cine Specials having PAR 4-lens turrets and Yolo automatic dissolves, and is easily installed by camera owner.

For further information and prices, write the manufacturer and mention *American Cinematographer*.

Colburn Labs Expand—Recent expansion of facilities of the George W. Colburn Laboratory, Inc., 164 No. Wacker Dr., Chicago now gives company possession of entire building where first it began business several years ago. Company services producers for film processing, titling, etc., from all over the world.

Reception, general offices and order dept. are now on ground floor. Film library and art and title depts. are on

(Continued on page 245)



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MODEL II

The ideal 35mm movie camera for TV Newsreel, Industrial, Travel and Scientific Motion Picture Photography.

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I first used the Arriflex 35 in Germany in 1945 when I was attached to the Signal Photo Company in Liesbaden to cover the Nuremberg trials, and in 1946 to film the Armed Forces Olympics, General Eisenhower's visit to Luxemburg, and many other important news events. Since then I have gotten to depend upon my Arriflex entirely.

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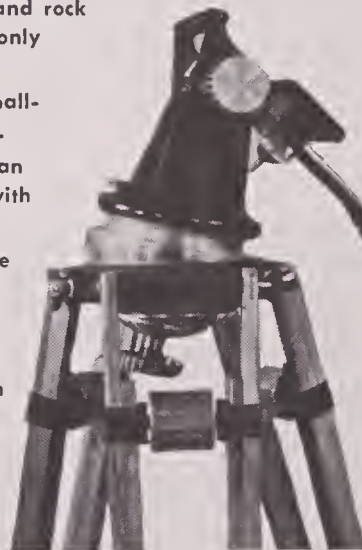
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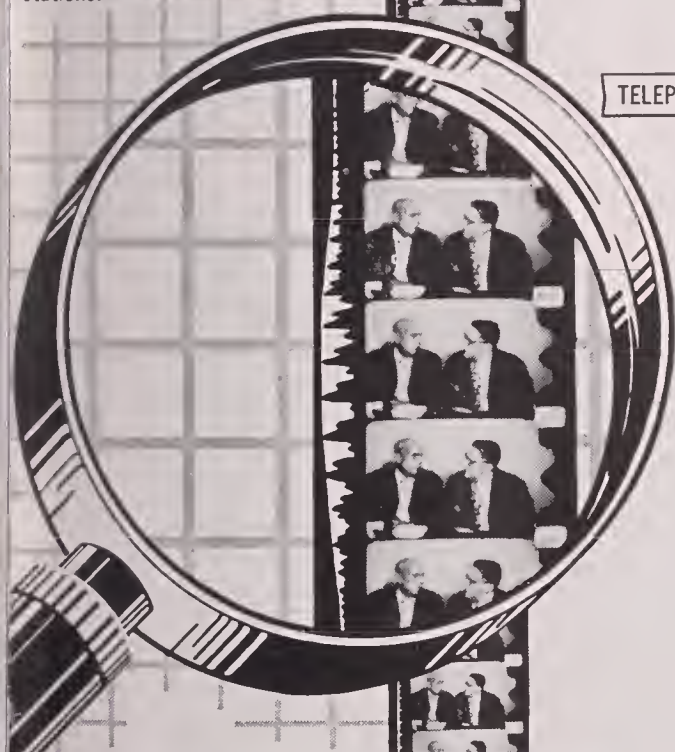
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★ Only one audio-modulated sound-track edge, eliminates Gamma (contrast) effects and minimizes "Eberhard Effect" and "Mackie Line" troubles experienced with multiple-track variable-area recording.

★ Audio galvanometer and shutter-noise-reduction galvanometer are independent, preventing noise-reduction-bias cross-talk distortion on sound-track.

★ Rugged. Can be overloaded without danger.

★ Tested and now being used by leading Studios and Television Stations.

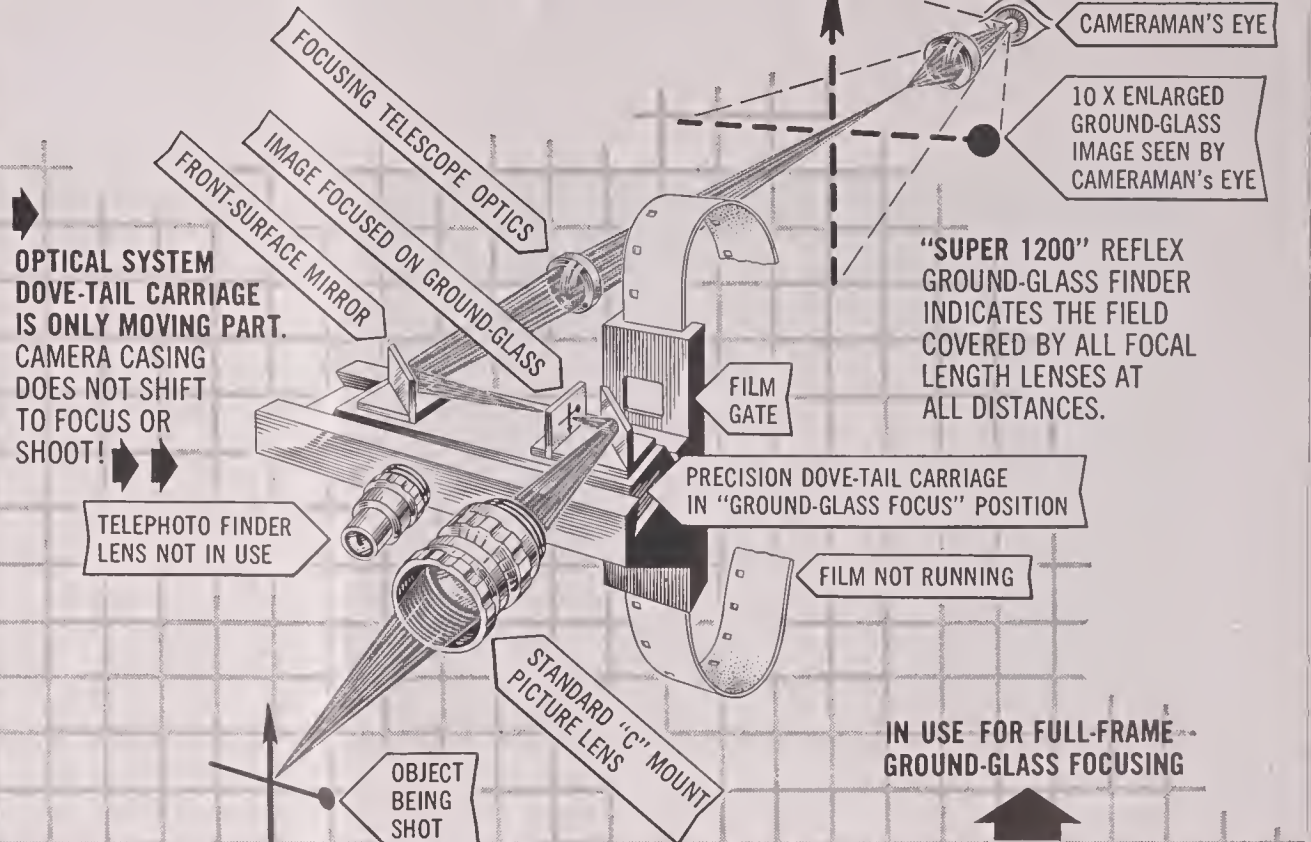


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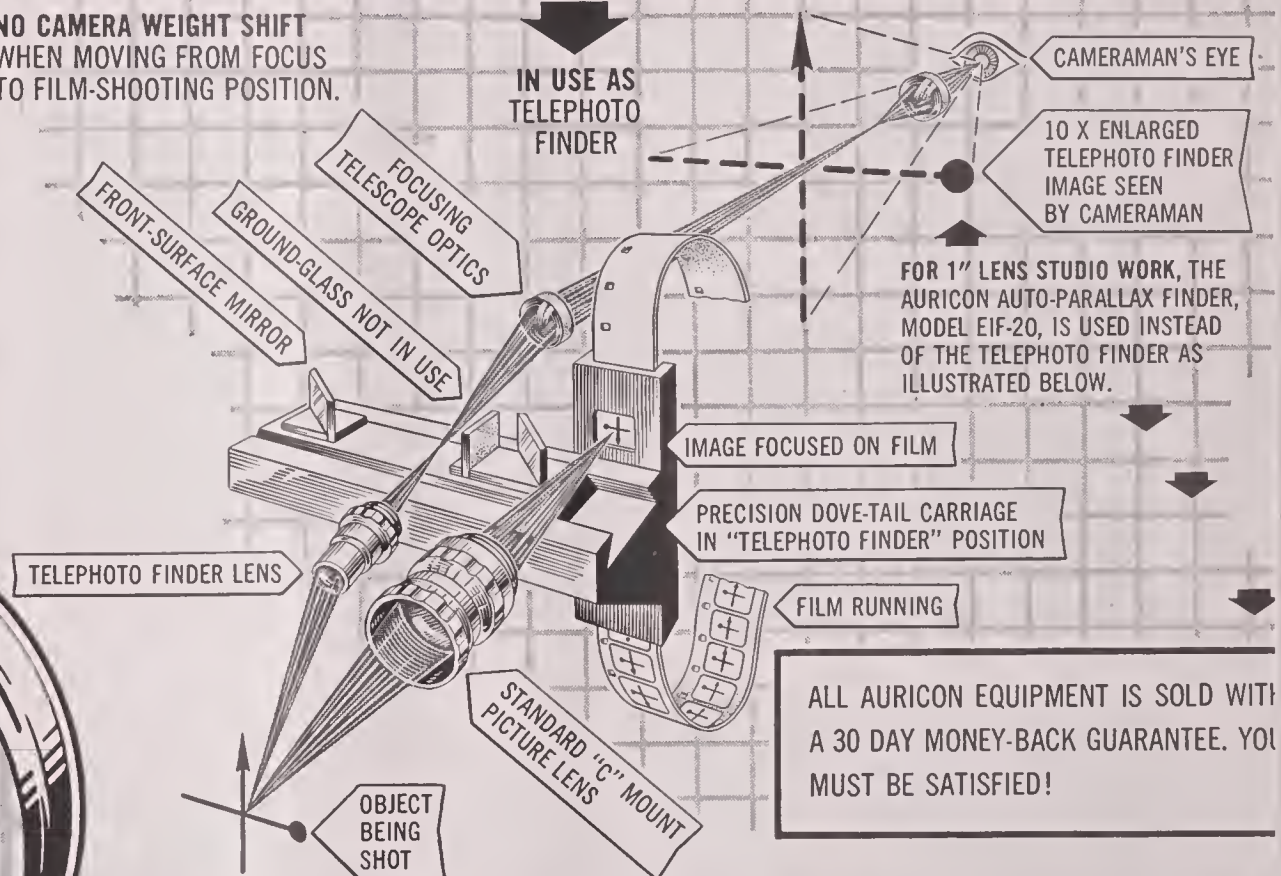
MANUFACTURERS OF SOUND-ON-FILM RECORDING EQUIPMENT SINCE 1931



SUPER 1200 CAMERA FOCUSING-OPTICAL-SYSTEM

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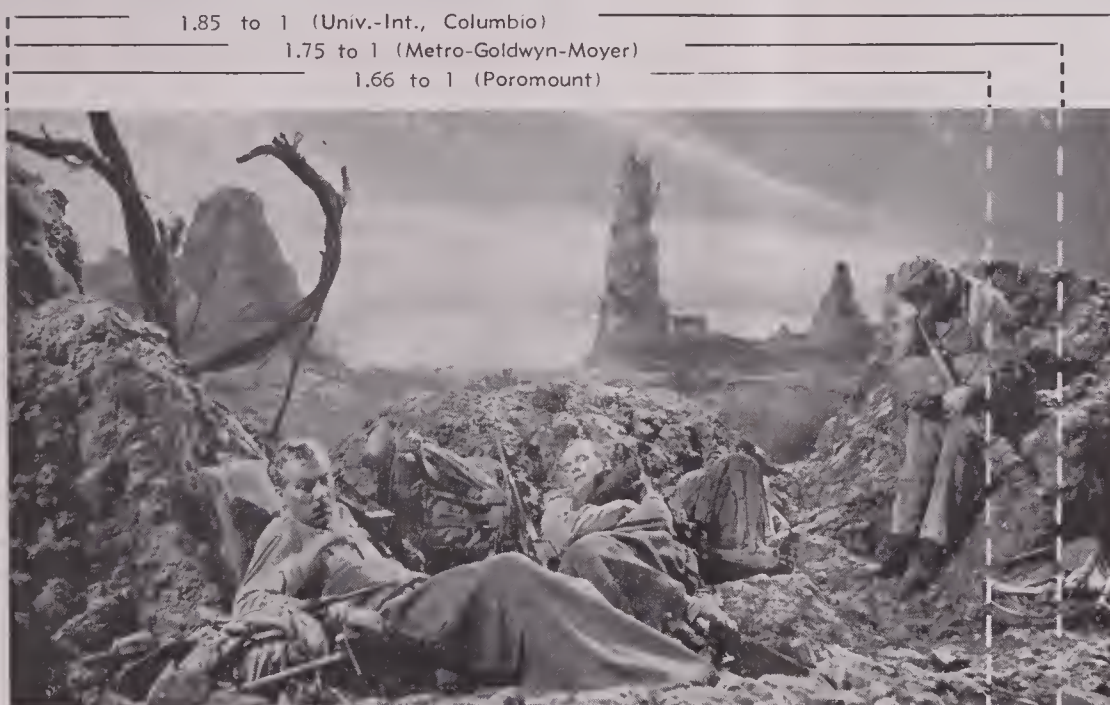
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2-D, 3-D, Wide



NORMAL—For comparison, a scene from a current Hollywood production is pictured above and below in three different formats. Here it is shown in the conventional 1.33 to 1 aspect ratio, long the industry standard.



CINEMASCOPE—The same scene as it would be photographed and screened in the new ultra-wide-screen CinemaScope process. Of the three methods illustrated, only the latter requires special lenses for

camera and projector. Special metallic-surfaced screens are employed in showing all wide-screen as well as three-dimension films, because wide-screen demands maximum illumination and reflectance.

LAST MONTH, Columbia Studio in Hollywood announced it had developed and put into use a "new four-way camera which will shoot simultaneously 2-D, 3-D, 2-D large screen, and 3-D large-screen." Both within and without the industry, this statement created much speculation as to just what sort of "magic" camera this studio had contrived.

Actually, what Columbia's technical men had done was discover that almost any conventional motion picture can be given pleasing wide-screen presentation simply by projecting it with a wide-angle lens and masking it down top and bottom to give the projected picture a wider format.

The method can be applied to both 2-D and 3-D films. Thus, a production photographed with Columbia's new

Vitascope stereo camera (described elsewhere in this issue) can be exhibited any one of four ways: (1) conventional 2-D or flat (by screening prints made from one of the dual stereo negatives); (2) conventional 3-D (requiring viewing glasses); (3) 2-D wide-screen by projecting the conventional flat picture with a wide-angle lens and masking down the aperture, as described above; and (4) 3-D wide-screen in the same manner as method (3).

At the same time, this all-purpose system was being adopted by Paramount, Universal-International and Metro-Goldwyn-Mayer studios. The transition that has been going on

WIDE-SCREEN — The same scene given the new aspect ratio of 1.85 to 1, which has been adopted as standard by Universal-International and Columbia studios. Dotted lines define aspect ratios adopted by two other studios as would apply to same scene.

Screen, Or All Three...

A survey of the latest trend in the motion picture industry, which enables exhibitors to screen all standard films in a new, wide-screen format.

By ARTHUR GAVIN

from conventional motion pictures to three-dimension and wide- and large-screen pictures has created a serious problem for exhibitors. Once the current supply of "new style" films is in release, there won't be enough of the new type film product to fill exhibitors' needs, at least for some time to come. This means exhibitors must continue to show ordinary 2-D films in competition with films having the newer format. At the same time, each major studio has a backlog of unreleased 2-D pictures, the market value of which stands to be seriously affected as the trend to stereo and wide-screen films gains impetus. The problem faced by both exhibitor and film producer is how to put these films on the screen with a "new look" and with sufficient increased appeal to make them stand up against stereo films. Cinerama, etc., in competition.

When studio engineers found that most backlog films could be screened successfully in a wider aspect ratio, the decision naturally followed to photograph all new productions with the newer wide-screen ratios in mind. To the cameraman, this means composing scenes differently so that important detail or action will not be cut off when the picture, usually photographed full frame, is screened. Illustrations on this and succeeding pages describe this more fully.

Motion pictures made by Columbia as well as the other studios adopting the four-way method are now composed essentially for wide-screen presentation.

but at the same time there is harmonious composition extending to the full limits of the standard aperture frame. In the camera finder there is a special transparent mask (see illustration) which enables the cameraman to compose his scenes with both aspect ratios in mind. Thus, all films made henceforth may be exhibited in either conventional format or wide-screen without the viewer being aware of any serious cropping of the overall scene.

It is in the matter of aspect ratio—the relative height to width of the screen—of wide-screen presentation that many of the studios are in disagreement. This has ranged from 1.50/1 to 200/1. (This, of course, excludes ultra-wide-screen Cinerama and CinemaScope systems, neither of which are being considered here.) Eventually, of course, there must be standardization; but at present, each studio believes its plan to be the correct one.

The thinking that has led to these conclusions and the steps that various studios have taken in respect to wide-screen presentation of its pictures is summarized in the ensuing paragraphs—all of which will be of interest to the director of photography because of the effect it is expected to have, indeed already is having, on the photography of feature films:

Paramount—This studio has set 1.66 to 1 as the aspect ratio for its wide-screen pictures. All Paramount pictures will continue to be filmed at full aperture, so they may also be exhibited at

the conventional aspect ratio of 1.33 to 1, where 1.66 to 1 screening is not yet feasible. Paramount, according to Loren Ryder, studio engineer, recommends the use of the largest possible screen, always increasing the width but without diminishing the height. "We also strongly recommend use of the recently introduced light 'surround' for theatre projection screens which greatly enhances both 3-D and wide-screen presentations," Ryder said.

Mr. Ryder, whose investigations relative to wide-screen presentation of standard 1.33 to 1 motion pictures began long before the current ferment was touched off by advent of "Bwana Devil" and "This Is Cinerama," stepped up progress in his studio's research, following the sensational public acceptance of these two films.

"We particularly analyzed the wide appeal Cinerama had for the public," Ryder said. "What was it that made it so successful? Not the wide screen alone; it was the illusion of realism and depth imparted by the unusually wide, curved screen plus the stereophonic sound. Our problem was to develop an approach to Cinerama for the ordinary theatre, and especially for the neighborhood movie houses having smaller screens and generally reduced auditorium area. We were, perhaps, the first to go outside the studio and into the nation's theatres in order to determine the best aspect ratio figure.

"Wherever we went we asked, 'How large a picture can we put on this theatre screen? What are the theatre's structural limitations? The height and width of the proscenium?' We soon found that our desire to give the theatres really big screen presentation was hampered somewhat by the structural design of many of the theatres, especially those having balconies."

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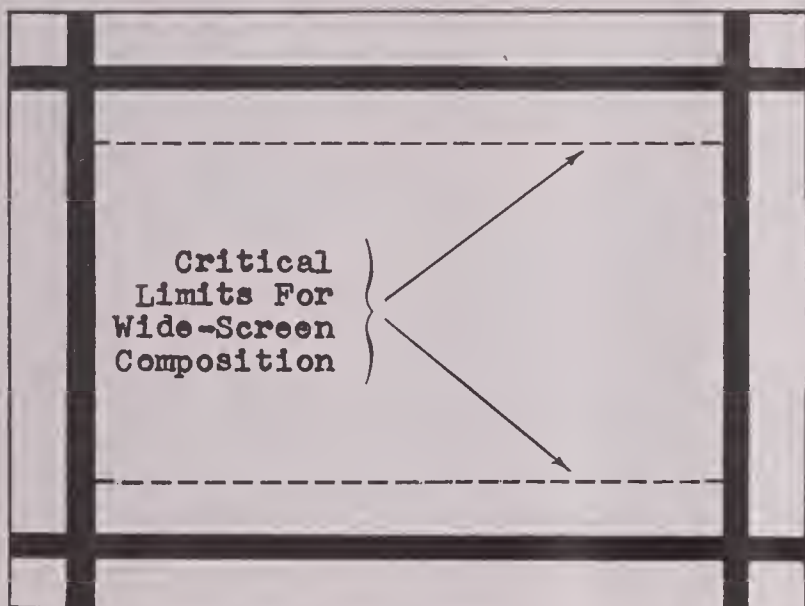


ABOVE ILLUSTRATIONS show steps in transition of a standard film frame to wide-screen. Picture at left appears in the conventional 1.33 to 1 ratio. Center picture shows how masks are employed in the projector to "crop" image top and bottom. With a wide-angle lens on

projector, image is then thrown on wide screen in the new rectangular format shown at right. Picture height remains same as in normal projection; only the width is increased. Except for very full closeups, few scenes are affected by the "cropping" or masking.



IN THOSE STUDIOS where productions are being photographed so they may be screened on either normal or wide screens, new rules apply in composing each scene. Dotted lines above show the critical limits for wide-screen composition beyond which no action must extend. In this scene, should man telephoning suddenly stand, his head would be cut off by the masking during projection, unless operator moved camera upward to keep him below the dotted line at all times.



PATTERN of typical ground-glass on Mitchell camera finder, with new wide-screen masking (dotted lines) added. Heavy lines define standard Academy aperture. In masking finder for wide-screen composition colored plastic is used so cameraman can view and compose scene with consideration to both aspect ratios.



Some of the things Paramount learned about theatres, which have a direct bearing on the presentation of movies in wider format, are as follows: there are approximately 17,000 theatres in the U.S., not counting drive-ins. The great majority at present cannot screen a picture wider than 24 to 26 feet. Height of screen of the Paramount theatre in New York is 18 feet; the Astor is limited to a maximum width of 23 feet; the Victoria to 21 feet, and Warner's Strand to 20 feet.

As a result of its studies of the nation's theatres, Paramount has concluded that the largest screen that can be put into the average theatre for satisfactory viewing from all parts of the house should have an aspect ratio of 1.66 to 1—which is the ratio that Paramount Studio has fixed as standard for wide-screen exhibition of all its feature films. Taking the New York Paramount theatre as an example, the maximum wide screen that can be installed there is approximately 18 x 29 feet.

"Having fixed 1.66 to 1 as our aspect ratio," said Mr. Ryder, "we then screened every picture in our existing backlog of films to determine if they would screen satisfactorily in this new, wider format. Every picture without exception was easily accommodated.

"The developments at Paramount are important economically," Mr. Ryder said, pointing out that the studio's new achievements insure the success of its large backlog of films.

"By giving them wide screen exhibition with stereophonic sound, we thus automatically bring them into the new order of film presentation, even though they were not shot as 3-D or wide-screen films originally," he concluded.

Universal-International — Early last month this studio unveiled its method of wide-screen projection for both 2-D and 3-D films, complete with stereophonic sound. Studio engineers have established an aspect ratio of 1.85 to 1 as the standard for U-I pictures.

A special curved metallic projection screen is an important adjunct to U-I's new system. Conceived and developed by studio engineers, the prototype screen, pictured at left and erected on one of the studio sound stages, is 25 feet high and 50 feet wide and is curved on a 90-foot radius. It has a light magnifying factor of approximately 4 to 1 as compared to present theatre screens. This means light transmitted to

(Continued on page 232)

CURVED WIDE SCREEN developed by Universal-International studio is metallic-surfaced to intensify brilliance of projected picture, both wide-screen and 3-D. Scene is from U-I's "Thunder Boy," first wide-screen release in Technicolor. Paramount and MGM have developed similar screens.

HEAVENLY HARMONIES

in Sight and Sound...

Scene from "Heavenly Harmonies," produced by Unusual Films, at Bob Jones University, Greenville, S. C. Shown below are Director Stenholm and Chief Cameraman Craig using their Maurer "16."



Katherine Stenholm, Director,
and Robert Craig, Chief Cameraman,
Bob Jones University Film Department,
find the Maurer "16" ideal for their highly professional needs.

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OF ALL THE STEREO cameras which have taken shape in Hollywood since the first flush of 3-D, none perhaps embodies so many practical features as that conceived and built at Columbia Studios under the supervision of Gerald Rackett, studio engineer. Of first importance is the fact Columbia's 3-D camera was designed to meet all the basic needs of the industry in its present stage of upheaval, if not in the years to come. It is able to photograph films in color or black-and-white for four different types of presentation: 2-D, 3-D, 2-D wide-screen, and 3-D wide screen.

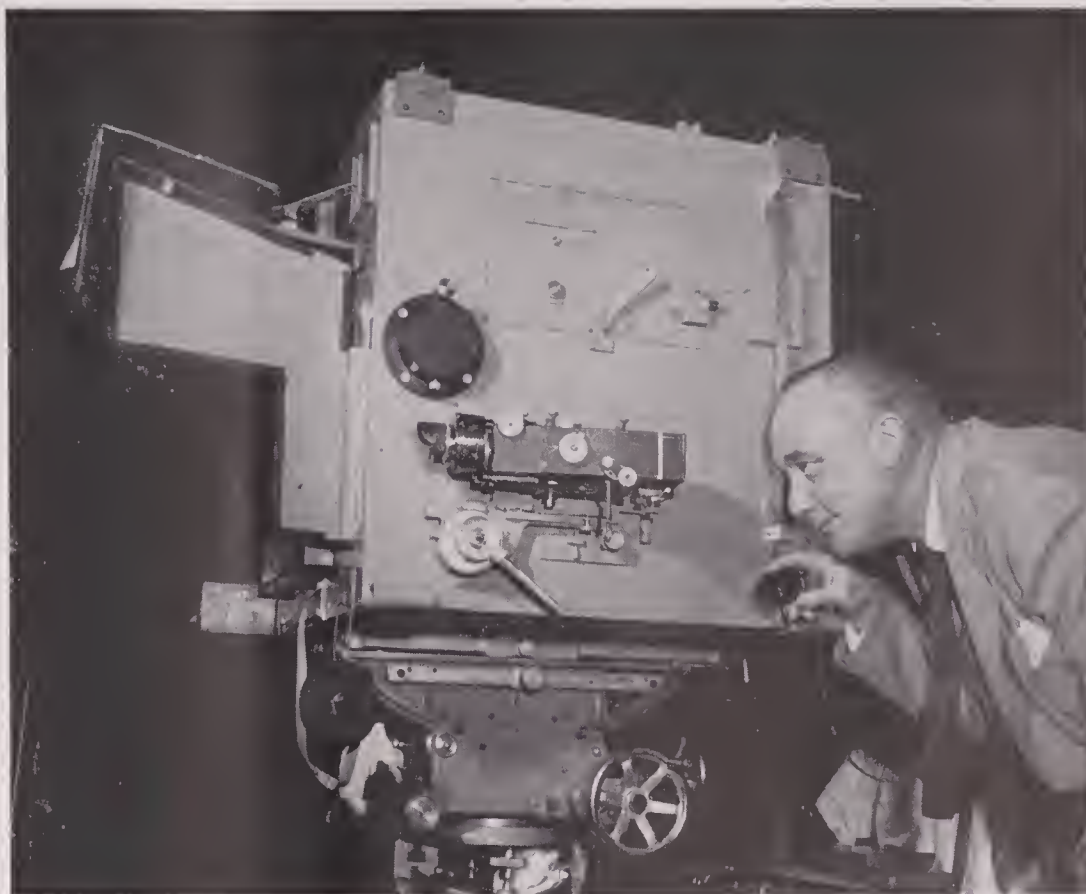
But more important perhaps to the cinematographer is the fact the camera was designed with the cameraman's problems in mind rather than solely the ultimate result on the screen.

"The camera was designed to be essentially a cameraman's tool," says Mr. Rackett, "one which will enable him to concentrate attention on the artistic side of photography with a minimum of attention to the mechanics of 3-D. We engineered it especially so any cameraman and crew may operate it without the need for slide-rules, calculators or complicated formulas."

If the blimped camera in the photographs on this page appears similar to a Technicolor camera at first glance, it is because Mr. Rackett undoubtedly embodied some of the finer points of the latter in designing Columbia's 3-D camera. It was Mr. Rackett who, years ago, designed the first Technicolor 3-strip color camera and blimp.

A description of Columbia's 3-D camera properly begins inside the blimp. (Because the camera has been in constant use on the sound stage, there was no opportunity to remove

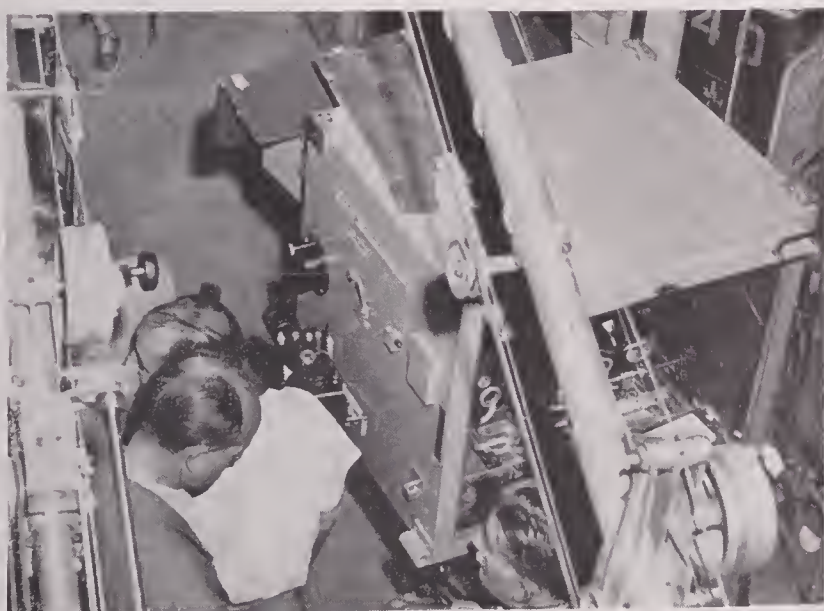
(Continued on page 234)



RESEMBLING a Technicolor camera is Columbia Studio's fully blimped 3-D camera, pictured above. Said to be the most advanced 3-D camera yet designed, it comprises two Mitchell camera movements mounted side by side, which shoot straight ahead without aid of mirrors or prisms. Looking through finder is Charles "Buddy" Lowton, ASC, who is using camera in shooting Columbia's "Miss Sadie Thompson" in color.

Columbia Studio's 3-D Camera

Compact, well-designed unit utilizes 2 Mitchell cameras, shoots straight on without use of mirrors or prisms, and makes undistorted closeups.



GAFFER'S view of rear of camera. Blimp door slides up and into top of blimp. Cameras rack over to permit insertion of dual viewing tubes, which afford binocular view of scene plus setting of cameras for proper convergence and interocular.



STANDING in front of blimped camera are cinematographer Lowton (2nd from right) and actress Rito Hoyworth along with group of technicians watching rehearsal of a rosin scene for "Miss Sadie Thompson," which stars Miss Hoyworth.



▲ PICTURES above and at right are of actual screen images, scenes from "The Robe," photographed as the picture was projected. They show typical composition for CinemaScope.



◀ DIRECTOR of photography Leon Shamroy, ASC, (center) discusses with Sol Halprin, ASC, 20th-Fox camera dept. head, and Earl Sponable, studio research engineer, the anamorphoscope lens with which CinemaScope films are photographed.

▶ CAMERA assistant Lee Crawford shows how the CinemaScope lens is mounted on camera. Secured in a special mount, lens must be focused in synchrony with camera lens.

Filming The Big Dimension

The man who filmed the first CinemaScope production tells something of the problems encountered and of the new scope a remarkable new lens brings to picture making.

By LEON SHAMROY, ASC





ALTHOUGH the special high-reflection CinemaScope screen omplifies picture image in projection, CinemaScope photography requires a

high level of set illumination and must cover much wider areas generally than in conventional motion picture photography.

"THE ROBE," Twentieth Century-Fox studio's initial CinemaScope production, will show what D. W. Griffith always wanted to show but seldom could—cause and effect at the same time. It is destined to open a new era in motion pictures.

CinemaScope is the key which unlocks the door to the future. Darryl Zanuck decided that Frank Ross' production of "The Robe" was to be in CinemaScope and Technicolor because it is the ideal subject for this broad, personal medium.

Griffith and his cameraman, Billy Bitzer, were forced to invent new ways to use the camera, including closeups and over-shoulder shots, because the lens would not capture the full field of vision that they wanted to show. Today, if Griffith were using CinemaScope, he would seldom have to move in close with the camera, nor would he change angles often.

Griffith regretted that the narrowness of the screen made it necessary to cut from cause to effect, instead of being able to present them simultaneously. CinemaScope overcomes this limitation.

Henry Koster, currently directing "The Robe," is making full use of this new freedom. In almost every shot cause and effect are so closely linked they are as one. This brings added meaning, impact and flow to every sequence, and, of course, to the entire production.

It is still too early to embark on a detailed technical discussion of CinemaScope, as we are learning about it ourselves at 20th Century-Fox. Every day

we discover new potentialities, new uses for it. But a few basic truths have emerged, such as:

Closeups are possible and tremendously effective, but are seldom needed. I doubt that we will have more than five full-screen closeups in "The Robe," and even they will be only in the most dramatic situations. This despite the fact that we have such interesting faces to work with as those of Richard Burton, Jean Simmons, Victor Mature.

Michael Rennie, Betta St. John, Jeff Morrow, Jay Robinson in addition to a number of carefully selected supporting actors.

With CinemaScope it is quite possible to show five full-length figures simultaneously, with the face of each just as large and intimate as now seen on a conventional screen when only one player is given a full closeup.

Camera set-ups will be reduced to

(Continued on page 230)



THE "NEW LOOK" behind today's scenes in film production. Three mike booms support microphones above set for recording stereophonic sound for CinemaScope, posing new problems for the director of photography.

Terror In 3-Dimension

Pev Marley's commendable 3-D filming of Warner Bros.' "House of Wax" demonstrates dramatic value of stereo cinematography.

By HERB A. LIGHTMAN

WITH ONLY ONE DAY'S notice, J. Peverell Marley, A.S.C., took over as director of photography on Warner Bros.' 3-dimensional thriller, "House of Wax," after cinematographer Bert Glennon was forced to quit the picture because of illness. Marley jumped into the middle of his first 3-D assignment with literally no time to prepare. Also, it was his first experience with the new WarnerColor photographic process. It is a great tribute to this skilled craftsman that the general photographic quality is top-grade, and that the 3-D

effect is very striking, indeed.

From the critical technician's point of view, the Natural Vision stereo effect in this film, while not perfect, is by far the finest to be shown publicly thus far. It is characterized by a smoothness and consistency not evident in Arch Oboler's initial 3-D effort, "Bwana Devil." The mechanics of the photography have been skillfully slanted to produce a very convincing, and at times very striking, illusion of depth. The stereo technique is ideally suited to the presentation of what is essentially a horror melo-

drama—but beyond that, Marley has used his camera to extract full dramatic effect from the action without relying too heavily on gimmicks.

Of course, there are sequences in which, for example, a rubber ball on an elastic string is batted repeatedly into the faces of the audience, a scene in which a wax head (neatly lopped off by a guillotine) comes tumbling right into the viewers' laps, and still other instances in which miscellaneous objects are pitched out of the frame of the screen and into the theatre. It is certain that the audience would have been disappointed had such jolting experiences not been included in a film of this type. In general, however, there is always a temptation to overuse effects of this sort. As Marley points out, 3-D photography (like any other good photographic process) exists not for its own sake, but solely to help tell a dramatic story in the most effective way possible.

Briefly stated, "House of Wax" is the story of a sensitive sculptor whose wax museum is set afire by an unscrupulous partner to get the insurance money. Horribly disfigured in the resulting holocaust, and driven mad by his great loss, the sculptor becomes a monstrous murderer who stalks and kills people resembling historical figures so that he may dip their bodies in wax and place them on display. His detection and eventual destruction account for a bulk of the suspenseful action.

The most spectacular sequence in the picture, both dramatically and technically, is the fire which destroys the wax museum and its paraffin inhabitants. This situation reaches its climax in a roaring inferno of three-dimensional flame which seems to sweep right out of the screen and engulf the audience. Further horror is engendered by close-ups of the all-too-lifelike waxen faces melting into scorched caricatures, glass eyes falling out of smoking sockets, etc.

During shooting, this sequence provided one of the most violent pyrotechnic displays ever contrived by a Hollywood studio. Controlled by a corps of expert pyrotechnicians and special effects men, the fire raged for five full days on a giant sound stage. The only reported casualties, according to Warner's publicity department, were the eyebrows and eyelashes of the leading man, neatly signed off by the flames but just as neatly replaced by the make-up department. On the latter score, chief make-up man Gordon Bau deserves special mention for creating the most horrible make-up ever seen in color. The deformed face he designed for the monster (light blue scar tissue strikingly filigreed with purple veins)



DIRECTOR Andre de Tath (left) and director of photography Peverell Marley, ASC, discuss a camera angle for Warner's 3-D color production, "House of Wax," photographed with the Natural-Vision stereo camera. In center foreground is operator Howard Schwartz.



SCENES of the burning of the wax works are spectacular in 3-D color photography, in the skillful hands of cameraman Marley.



FULL LIGHTING enhances the illusion of depth in most scenes, and keeps all objects front to back always in sharp focus.



ARTFUL composition enhances drama of the scenes depicting pursuit of the frightened heroine by the mad sculptor.



STARK lighting in contrast with the low key played on the mad sculptor points up the girl's horror as capture nears.

is enough to produce a lasting trauma in any sensitive soul, and would have made the late Lon Chaney at his colodion worst look like a collar ad.

Pev Marley discusses the photography of this picture with an ease amounting to understatement. "Curiously enough," said Marley, "our main problem in 3-D filming is not so much mechanical as dramatic. By that I mean that we must be—and are—constantly concerned about directing audience attention *where we want it*. In three-dimension, every element in the scene has a similar spacial value, and the eye tends to roam about and explore these elements much more than in a flat film. The problem is to corral the viewer's attention and make him look at what you want him to look at—which is, of

course, the dramatic focal point of what is going on in the scene. Any other single element, which juts out of the frame and steals audience attention away from where it ought to be, is bad and should be avoided."

This is, of course, much more easily said than done, since the very objects which enhance the illusion of depth are also those which could easily distract the attention of the audience. For example, a tree limb framing the scene—traditionally used to lend depth to a flat scenic composition—can, because of its prominence in 3-D, distract the audience's attention from the really important part of the scene.

In the filming of "House of Wax" this pitfall was generally avoided. But even so, in a couple of moving camera

shots, foreground objects gliding by assumed such prominence that the eye of the viewer tended to remain with them rather than continuing on with the object of principal dramatic interest.

Marley is of the opinion that the solution of this problem depends upon several factors. First, the staging of the action must be such that the eye will be directed to that which is most important. Second, lighting should be arranged (at least, up to a point) so that it will subdue that which is not important, and point up that which is. Third, the point of convergence of the twin lenses can be thrown to favor the area of principal interest, thus directing audience attention to the place where it should be.

(Continued on page 242)

TV Films Seek Hollywood's Top Cinematographers

Increased TV film production is taking up the slack in employment of Hollywood cameramen, as more and more are finding challenging new assignments in the bustling new industry.

IN CONTRAST WITH the marked tapering off in major studio activity, television film production in Hollywood currently is at an all-time high. This has proved a boon to the motion picture industry's directors of photography, many of whom—dropped from studio weekly payrolls—have found a ready market for their talents among the producers of TV films.

During the month of April, an average of 35 cinematographers each week were shooting TV films in Hollywood, not counting those engaged in filming TV commercials. It has been a long time since there have been that many cameramen working simultaneously in feature film production. All this points not only to the healthy condition of the TV film field but reveals how an industry, given scant chance for survival by many 24 months ago, now is supplying the major employment for Hollywood's cinematographers.

It is interesting to note how more and more TV film producers are relying on experienced directors of photography, having years of major studio experience, to photograph their video film productions. Of the thirty-three cinematographers shooting TV films last month, twenty-three were men with long records in the major studios.

These men, and the films or series for which they were engaged to shoot, are listed below. Not included are names of those cinematographers who photographed pilot films. Some of the more experienced TV cameramen, it will be noted, photographed more than one TV series:

GERT ANDERSON: "Ford Theatre" series of 1/2-hr. dramas for Screen Gems.

LUCIEN ANDRIOT, ASC: "Life of Riley" series of 1/2-hr. situation comedies for Hal Roach Productions.

JOSEPH BIROC, ASC: "I Am The Law" series of 1/2-hr. dramas for Cosman Productions.

NORBERT BRODINE, ASC: "Crown Theatre" series of 1/2-hr. dramas for Bing Crosby Productions; also, "Tales of a Wayward Inn" series of 1/2-hr.

dramas for Showcase Productions.

WILLIAM BRADFORD, ASC: "Death Valley Days" series of 1/2-hr. western adventures for Flying A Productions.

DANIEL CLARK, ASC: "Favorite Story" series of 1/2-hr. dramas for Ziv-TV Corporation.

ED COLMAN "Dragnet" series of 1/2-hr. detective dramas for Mark VII Productions.

ROBERT deGRASSE, ASC: "Amos 'n Andy" series of 1/2-hr. comedies for Hal Roach Productions.

CLYDE DEVINNA, ASC, "The Joan Davis Show" series, 1/2-hr. comedies for Joan Davis Productions.

GEORGE DISKANT, ASC: "My Hero" 1/2-hr. dramatic shows for Four Star Productions.

CURT FETTERS: "Cisco Kid" series of 1/2-hr. westerns for Ziv-TV Productions.

ELLSWORTH FREDERICKS: "Chevron Theatre" series of 1/2-hr. dramas for

Revue Productions.

KARL FREUND, ASC: "I Love Lucy" and "Our Miss Brooks" series of situation comedies for Desilu Productions.

FRED GATELY, ASC: "Big Town" series of 1/2-hr. dramas for Gross-Krasne Productions; also "Linkletter and the Kids" series of 1/4-hr. telepix for John Guedel Productions.

JACK GREENHALGH, ASC: "This is the Life" series of 1/2-hr. religious films for Family Films, Inc.

RUSSELL HARLAN, ASC: "Playhouse of the Stars" series of 1/2-hr. dramas for Meridan Pictures, Inc.

BENJAMIN KLINE, ASC: "Fireside Theatre" series of 1/2-hr. dramas for Frank Wisbar Productions.

JACK MACKENZIE, ASC: "The Abbott and Costello Show" series of 1/2-hr. comedies for Cosman Productions.

ERNEST MILLER, ASC: "Death Valley Days" series of 1/2-hr. western

(Continued on page 236)

LAST MONTH it was announced that a major TV chain was "quietly switching over to all-live TV and eliminating film." Despite this rumor, Hollywood last month had more television films in production than in any previous month. Today there are more than 110 TV film series available for local and regional sponsorship.

Most of these films are currently being televised by the majority of the nation's TV stations. Several new series are in the planning stage or are about to go before the cameras.

This activity means that more and more cinematographers will be recruited from among ranks of studio cameramen to photograph these television film programs. Last month, an average of 33 cinematographers was engaged weekly in directing the photography of TV films in Hollywood.

21
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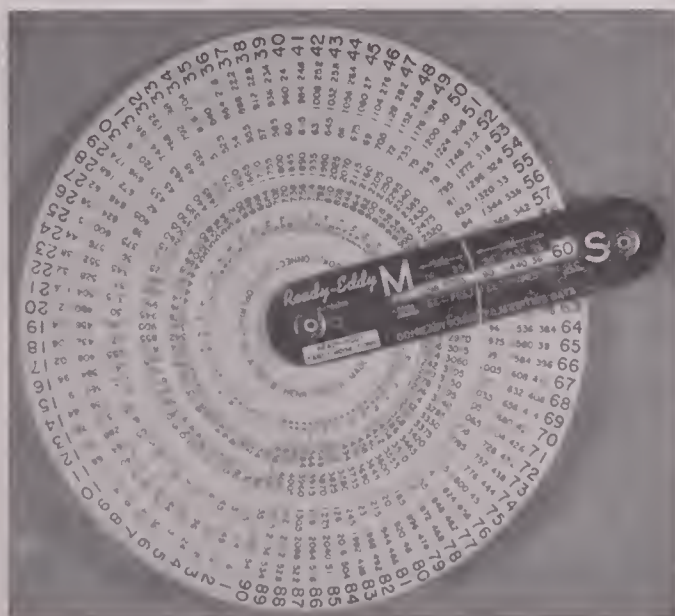
Handy disk computer gives ready answers to the many problems of the photographer, film editor, and the laboratory technician.

By LEIGH ALLEN

AMONG THE MANY useful aids employed generally by motion picture technicians and others in the industry, the Ready-Eddy sound film computer is perhaps one of the more important. Introduced to the industry less than a year ago, today the Ready-Eddy computer is found wherever professional motion pictures are made.

Ready-Eddy's popularity is due to two things: it gives the film worker a host of data in a simple, easy-to-use disk calculator, and it fills a need long felt for just such a device. The calculator, or computer as its designer chooses to call it, is a plastic disk 5 inches in diameter having several rows of figures arranged in an orderly manner on both sides. A sliding indicator is rotated around its perimeter to find quick answers to such questions as: what is the screening time for 35mm or 16mm film of a given length? or, conversely, how long must a film be to screen for a certain period of time? (ideal for makers of TV spot announcements, etc.), or what will be the length of a 16mm reduction print made from a 1000-ft. reel of 35mm film?, etc., etc.

READY-EDDY (below) is a durable 5-inch plastic disk having 12 rows of figures on both sides. Indicator rotates around perimeter of disk to give ready answers to a wide range of problems encountered in the production, editing and screening of motion picture films.



Ready-Eddy was developed, designed and copyrighted by Henry Roger of Sandy Hook, Connecticut. "It is the result of a slow process of development and gradual perfection," says Roger. The idea for the computer began many years ago when Roger was a research scientist employing time-lapse cinematography in the investigation of living cells. As so often is the case, cash appropriations for suitable motion picture equipment for the laboratory that employed him were slow in coming. "Many of the forces in power considered motion pictures below the dignity of a research institute until they saw the results later," said Roger.

In this case, necessity was again the mother of invention, and the lack of suitable editing equipment started Henry Roger on devising the computer. He worked out his first scales on a sheet of paper. He set down the numbers from 1 to 60, representing seconds of time. Under each figure he wrote the footage and number of frames, so that

he could determine at a glance the many answers he required when cutting and editing his films. This sheet of paper, the basis of his original Ready-Eddy computer, facilitated his early-day film work tremendously; it was always near his film-viewer or footage-counter for ready reference — until finally, frayed and faded, it fell apart after more than ten years of use.

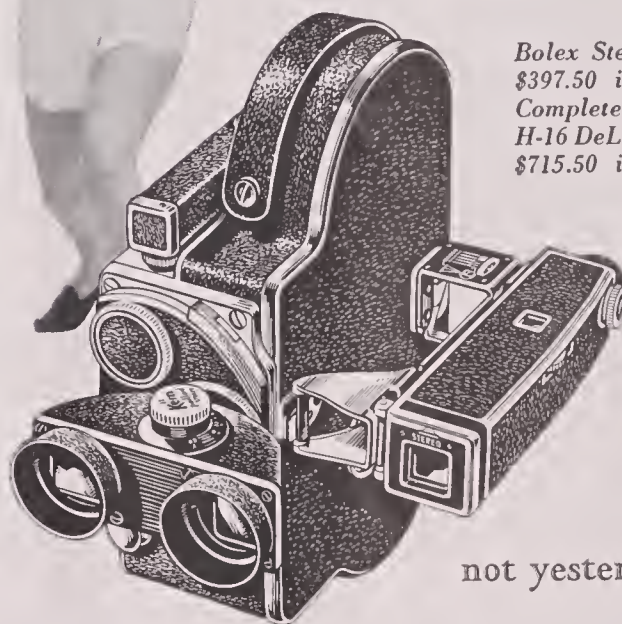
Following the disintegration of his first "computer," Roger made up a new and greatly improved data scale incorporating figures for both 16mm and 35mm film. Soon fellow technicians were asking for copies, and this led to the first thought of marketing the scale. Roger extended the scale to cover data beyond one minute to a more practical maximum of 42½ minutes. Because of the great number of figures, he adopted the circular chart or disk as the best means to set them down in compact, yet convenient form. Several models were made before he finally decided on the present format. Every bit of available space is utilized on both sides of the disk to give a wide range of important data to the film workers. Figures are legible and the need for adjusting sliding segments to line markings, as with slide rules, has been entirely eliminated. There is just one movable part—the indicator pivoting on a rivet at the center and having a narrow slit through which the numerals of the calculation may be seen.

"Before actual production-line manufacturing of the Ready-Eddy was begun, all figures on the disk were checked and re-checked for accuracy," says Roger.

(Continued on page 240)



WALTER STRENGE, ASC, one of the first cameramen to use a Ready-Eddy co'culator, directs photography of the popular "My Little Margie" television film series.



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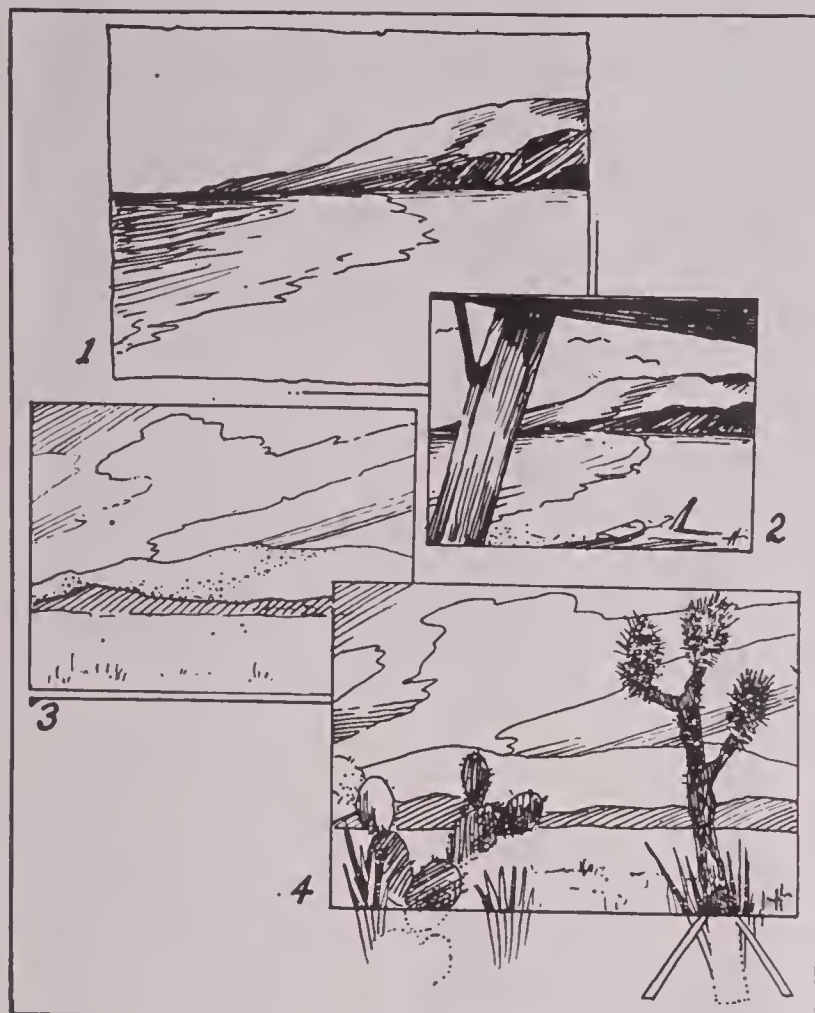


FIG. A—How to improve dull natural compositions in filming movies: The beach scene (1) takes on new interest when props are added to foreground, as in (2), making it appear scene was filmed from beneath a pier. Similarly a bleak desert scene (3) is given pictorial emphasis by addition of prop cactus to produce scene (4).

FOR THE 8mm or 16mm cine photographer, who aspires to professional status as a cameraman and producer of films, a thorough understanding of the part art direction plays in the production of motion pictures is a requisite. Perhaps the best grounding in art direction fundamentals can best be acquired by the non-professional by applying art direction techniques in the making of his amateur films.

We are not referring here to art direction that has to do with the design and decoration of lavish sets, but rather to the art of arranging elements within a scene in order to give it pictorial emphasis or dramatic accent; the knack of visualizing a scene and knowing what to do to give it more eye appeal.

In Hollywood studios, the art director assigned to a production is probably closest to the involved methods of production from story to the screen. In 8mm and 16mm movie making, the cameraman invariably is also the art director—or should be. Every vista he trains his camera upon is not always pictorially interesting, but often he can make it so if he exercises imagination and has the willingness to labor a little to produce the desired effect.

How may this be done? Let us imagine, for example, a camera trip to a Southern California desert area. Instead of filming the desert as so much open country, give your scenes compositional emphasis by placing foreground objects prominently in the scene, or by framing the scene with unobtrusive objects such as tall cactus or Joshua, timbers of a shack, etc.

Now suppose you have selected a scene important for its

How "Art Direction" Can Improve Your Movies

By JOHN FORBES

distant vista but having nothing of importance in the foreground. The missing foreground elements can be supplied by you—the art director—by digging up a cactus and transplanting it in the foreground. You then frame your shot, of course, so that the camera takes in everything but the props holding your transplanted cactus in position. This technique is illustrated in the accompanying Figure A—at 3 and 4.

A small twig or tree branch falling into the frame line at the top tends to lead the eye to the center of interest of a scene. Where a tree is unavailable at the site chosen to set up your camera, you can still add this pictorial emphasis to your scene simply by cutting a branch and having a person hold it in the position necessary for the desired effect while you shoot. Where you wish to insure absolute steadiness, nail the branch to a stout pole or stick and drive it into the ground at the proper position near the camera.

Fig. B shows how a balancing element was added by one cine amateur to a scene of this kind. A box filled with large boulders was buried in the ground directly in front of the camera, and grass and foliage added at the base to conceal the edge of the wooden box. The result was a scene with excellent compositional elements—an ideal setting for the type of action one might properly shoot in a setting of this kind.

A point to remember is that in action shots, it is very important to have compositional elements in the scene that will lead the eye into the picture and to the principal subject. In this example, imagine how the rock in the foreground aided by the branch framing the top of the scene would direct the eye to a horseman, automobile or a person moving forward on the distant road.

(Continued on page 241)

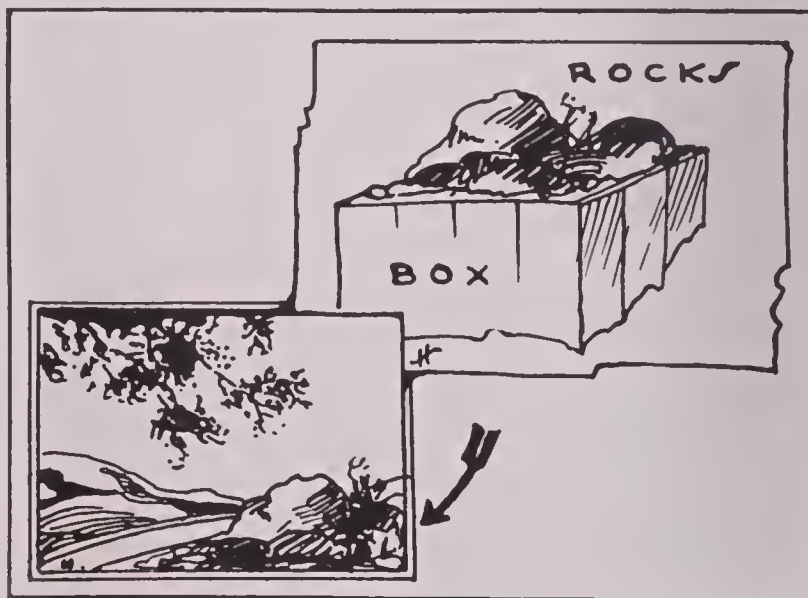


FIG. B—With aid of simple props—a wooden box filled with boulders in the foreground—a scenic vista is given a pleasing "new look." Added props improve composition, give depth detail.



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CONSULTING sketches of pre-planned action are Scoutmaster Ed More (left) and photographer Robert Young (behind the Cine-Voice sound camera) before starting to shoot a scene for "Wilderness Trail," ambitious non-professional 16mm sound film.



CAMERAMAN Robert Young makes a low-angle shot of oncoming soldiers as assistant at far left indicates where lad in center is to drop after being struck by an Indian arrow.

Filming A Boy Scout Outing In 16mm With Sound

Photographed with an Auricon Cine-Voice camera, "Wilderness Trail" is 15 minutes of war paint, zinging arrows, a burning stockade and whining bullets.

By ARTHUR ROWAN

IT SEEMS ONLY NATURAL that when a man acquires a brand new Cine-Voice 16mm sound camera that the first thing he wants to do is shoot a pretentious dramatic film, in which the full scope of his new instrument can be demonstrated. Such was the case with Robert Young, a commercial photographer of Indianapolis, Indiana who, until he had acquired his sound camera, had confined his movie making to the usual run of family movie stuff.

It followed that thirty boys along with a half dozen adults including Mr. Young, went on "location" late last fall in a wooded tract on Young's farm a short distance from Indianapolis. They spent four days in production on Young's initial 16mm sound film, "Wil-

derness Trail."

The making of this picture grew out of a conversation Young had with an associate, Thomas Culver. The latter had mentioned that sometime he would like to make a short motion picture based on some blood-and-thunder theme, using his two sons and a group of their friends in the cast. He thought an early Indian historical episode would be ideal, and he went on to describe how simple it would be to make tepees out of lengths of wide wrapping paper and a few poles—which could be burned for the climactic scene of the fight between the soldiers and the Indians.

Young at once was interested. He told Culver that if he would furnish the story and cast, he'd donate the film and

make the picture, and that his 130-acre wooded farm near Martinsville would make an ideal location site.

The discussion ended for the time being at this point, but the thinking continued. When thinking of battle scenes, one thinks of numbers; so it was a natural thing for Culver, who is a Boy Scout troop committee chairman, to think of the scouts as prospective Indians and soldiers for the picture. It also occurred to him that since the troop each year staged some kind of entertainment for parents, a movie picturing all the scouts would be an ideal sequel to the troop's annual charter night dinner.

When Scoutmaster Ed More put the problem up to the scouts themselves, the thought of burning tepees, hand-to-hand

struggles, gun battles and the chance to be movie actors appealed to all.

In setting out to write the script, Culver thought of the ample things he had to work with. There was the large wooded tract that would make an ideal backdrop for the action; plenty of sassafras poles to be cut for tepees of the Indian village; and a high bluff nearby—ideal for a dramatic scene in which the villain plunges to death. With all this to draw upon for props, locales, etc., the story was quickly written. An amateur writer, Culver attempted no tricky plots but wrote-in plenty of action which, of course, was certain to appeal to the boys and at the same time insure an action-packed picture. With the final draft of the story, approved, Culver then sketched out the action for the key scenes in story-board fashion, as pro-

fessional film makers often do. This aided him in writing the dialogue and refining the action for each principal player.

In the meantime, twenty rifles together with cartridge pouches were needed as props. Culver, with the aid of a neighbor, made the rifles from wood. Some of the boys' mothers took over the task of making uniforms. And the hundred and one other items which eventually swelled the prop list were rapidly produced thanks to the cooperation of friends and parents of the boys.

Thus the embryo movie making organization was ready to go into action when Scout troop meetings were resumed in the early fall. More and Culver first took a small group of Scouts to the location site and there began to prepare the location for actual filming.

Sassafras poles were cut and set up; tepees were formed of the wrapping paper and decorated; logs were cut to form a section of the stockade, the campground mowed, and many other chores taken care of.

Before the production staff, which comprised Young, More and Culver, went into action at the location, they had completed a very thorough script and shooting schedule. The latter was very carefully worked out, because the saving of time was all-important. With Indiana's unpredictable weather, the little company and cast was working against the elements. As it turned out, the weather the ensuing week was the best the state had seen in years.

Actual shooting began the second week in October. In addition to his

(Continued on next page)



INDIANAPOLIS Boy Scouts line up for rehearsal before Young's camera, which is mounted on a dolly for a travel shot of the marchers.



CATCHING vivid action of soldiers pursuing the Indians. Camera-man Young makes a closeup of one soldier as he's struck by arrow.



SCOUT Charles Culver, who played a soldier, doubles as prop man and scenic artist. Here he applies decor to Indian tepee.



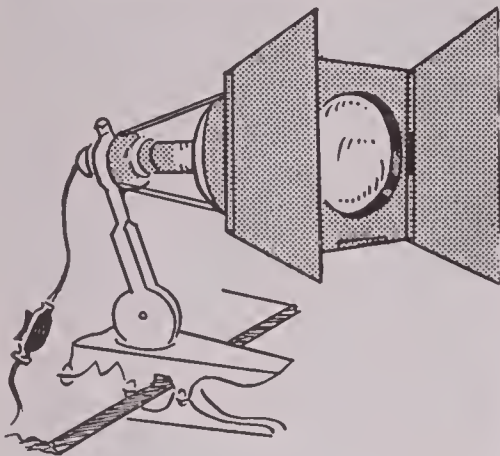
MRS. MYRON CLARK joined the filming troupe and served as makeup artist. Here she applies war paint to Indian Dick Chase.



YOUNG'S camera focuses on a hand-to-hand struggle between Indian and soldier, while the grunts and groans are recorded in sound.

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BOY SCOUT OUTING

(Continued from preceding page)

16mm sound camera, Bob Young had built a dolly and a set of tracks for filming dolly and travel shots. The dolly had a platform to accommodate the battery and amplifier-mixer of the sound system.

Actual filming was, for the most part, relatively uneventful. Sound was recorded for every scene, and because the Cine-Voice is a single-system sound camera, the sound is recorded within the camera as the scenes are filmed, and the sound track appears on the film, properly related to the picture, when the film is processed.

"We rehearsed each scene very carefully to insure the minimum of retakes and thus stretch our supply of film," Young says, adding, "Our actors' performances were amazingly professional. The boys actually seemed to live their

parts, which made the results all the more natural and sincere."

When the last scene was shot, Young and his associates next turned to the task of editing and titling. "Because we wanted to give screen credit to each participant in the film, hand-lettered credit titles were out of the question," said Young. "So we decided to present each member of the cast briefly in closeup. We figured the boys' families would rather see them in screen closeups than simply their names in print."

One evening soon afterward, a meeting of the little movie company was called. Young set up his camera, and the identifying closeups of the boys were filmed. Preceding this, a brief talk by the scoutmaster was recorded and filmed. He explained why the picture was made and how it was conceived, and then introduced the cast.

"World premiere" of the film was
(Continued on page 230)

P.S.A. Annual Amateur Film Competition



Tuttle Trophy, to be awarded annually
by P.S.A. far best family film.

portation both way must be paid by the entrant.

Motion Picture Division members of PSA (Individuals or clubs) are entitled to enter one film without an entry fee. For each additional film, and to non-members of MPD, the entry fee is \$1.00 per film. Name and address of the entrant should appear on both reels and reel containers. No entry blank is necessary.

Judges will be selected from the Chicago area. Comments or constructive criticism on contest films will be furnished by the judges, if requested in advance by the entrant. Trophies will be awarded to winners.

In addition, the competition will introduce a new annual award—the Harris B. Tuttle Trophy, which will be given this year and annually thereafter to the contestant submitting the best story-telling film having as the principle subject or theme, one or more members of a family. Possession of the trophy remains with the winner for one year, or until it is awarded to another person in a subsequent PSA competition. Any person who wins the trophy three times, not necessarily successive years, gains permanent possession of it.

Films and inquiries should be addressed to Margaret E. Coneely, chairman MPD Competition Committee, 5750 No. Meade Ave., Chicago, Ill. Leaflet containing complete rules of competition is available from the chairman on request.

THE MOTION PICTURE DIVISION of the Photographic Society of America is conducting its second amateur motion picture competition. The competition is open to everyone—including non-members, as well as members of PSA. Deadline for entries is midnight, May 25.

The rules are simple—any 8mm or 16mm film, sound or silent, taken anywhere, anytime, or of any subject — Family, Travel, Nature, Scenario, Industrial, or Newsreel is eligible, with the exception of films entered in previous PSA Cinema competitions. Trans-

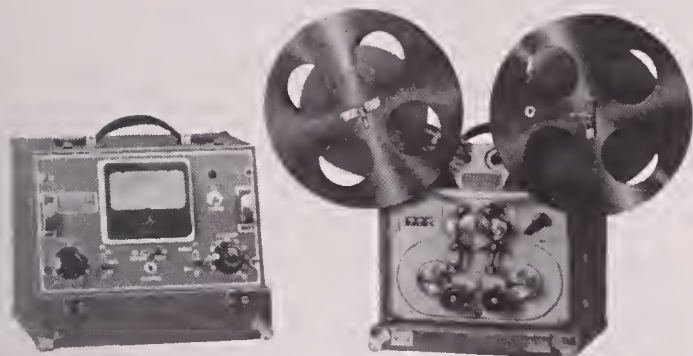
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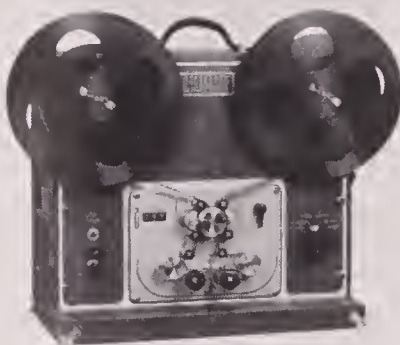
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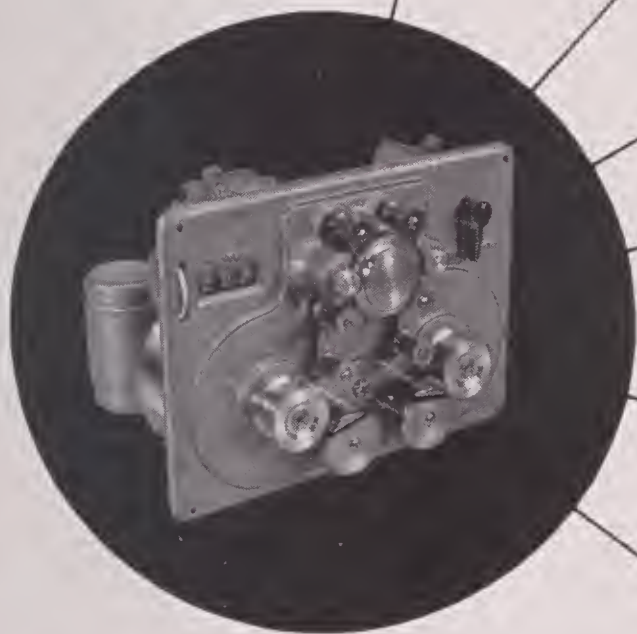
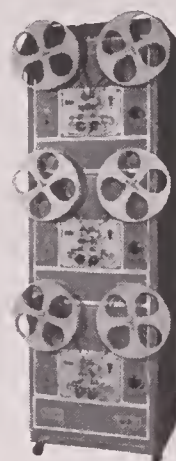
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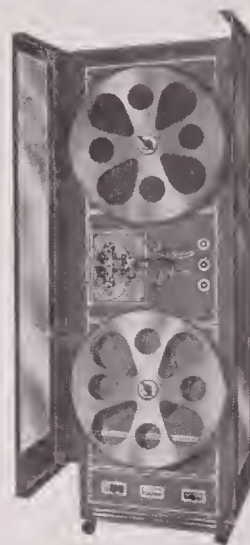
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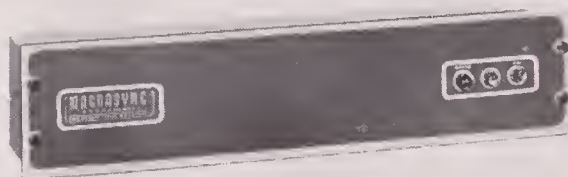
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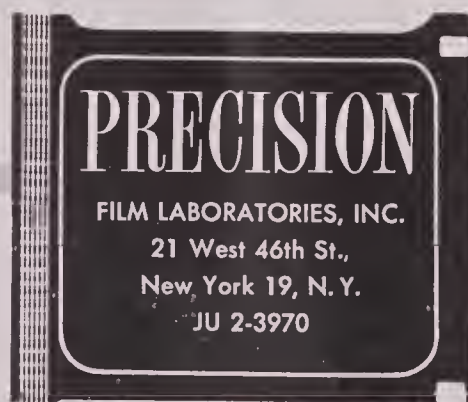
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BOY SCOUT OUTING

(Continued from page 228)

given in Indianapolis a few weeks later at the annual dinner for Scouts and their families and an impressive list of honor guests. "There was an air of expectancy during the dinner, and the Scouts were obviously eager to get it over with in order to see 'Wilderness Trail' on the screen," said Young.

"The deafening applause that followed the final fadeout was thanks enough to all of us who had worked so hard to make the picture a success," Young added.

Since its auspicious debut before the impressive gathering of Scouts, relatives and friends, the film has received wide publicity. Subsequently, television station WFBM-TV televised the picture to mark the commencement of annual Scout Week. So great have been the demands for screening the picture by other Scout groups, Young says, that an additional print has been made and put into circulation.

For him, the lessons learned in this project, says Mr. Young, were:

1—That good continuity films can be made with a single-system sound camera; scenes can be taken out of sequence without introducing any major editing problems. It is possible thus to effect savings in time and film ordinarily attendant to dubbing and re-recording, providing that each scene is well-planned before shooting starts.

2—Good and consistent modulation can be maintained throughout a single-system sound film, given careful attention during recording. The modulation in the first scenes was too high; after reviewing the first rushes, Young reduced the modulation. He believes his next sound film will show great improvement as result of experience gained in making his initial sound film.

"All in all," he says, "it was a very interesting and profitable undertaking."

THE BIG DIMENSION

(Continued from page 217)

one-quarter of their present number. Even on a lengthy picture like "The Robe," which I should estimate will run almost three hours, we probably will not have more than 200 set-ups, resulting in a considerable saving of time and money.

Writers for CinemaScope productions now change their basic approach to the action within scenes. When the camera sees an area two-and-a-half times as wide as what it saw before, as in CinemaScope, players move more naturally and with freedom, and can express themselves with more motion

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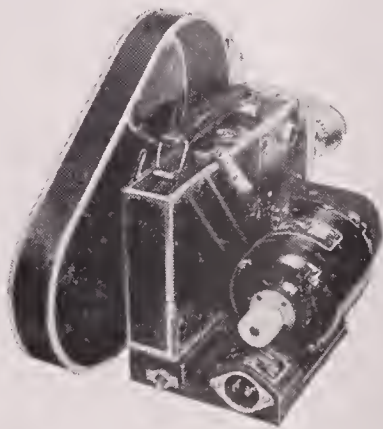
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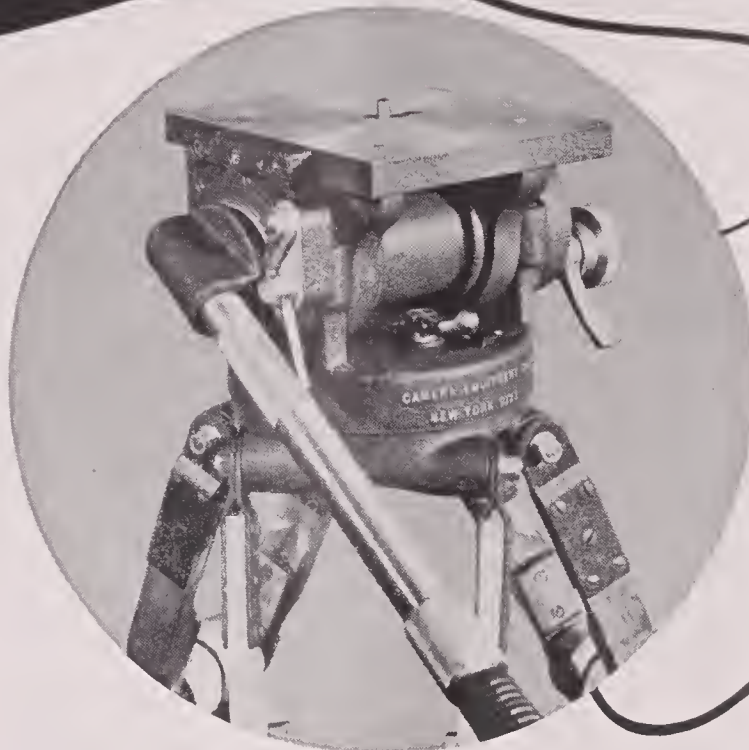
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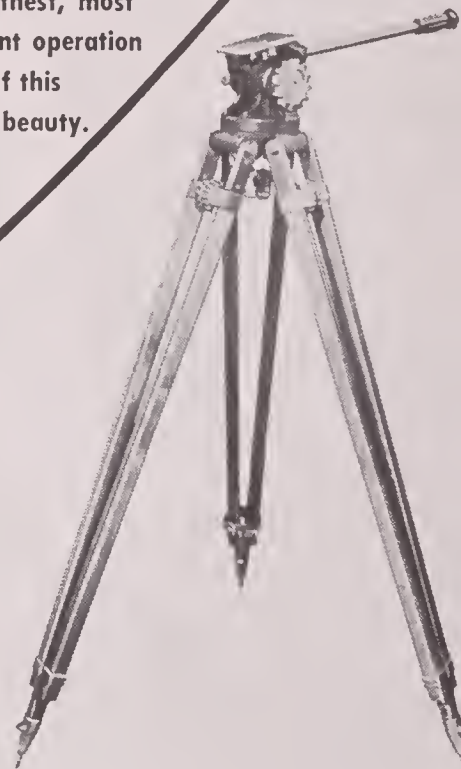


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and less dialogue than before. In this connection, stereophonic sound, which travels across the screen with the actors, is as important to CinemaScope as ears are to eyes.

Scenes in CinemaScope productions run much longer. Thus players must be able to memorize longer parts, and to hit their marks at several places and times. For "The Robe" we are fortunate in having experienced people who have helped get the CinemaScope process off to a fast start by knowing their lines and how to deliver them. With CinemaScope you can't cover up for an inferior actor very well, and we can expect the level of emoting to remain on a high plane for this process that allows the audience to study every member of the cast in great detail.

The technical men of Eastman and Technicolor, as well as studio experts like 20th's camera department head Sol Halprin and research engineer Earl Sponable, have pooled their resources in a successful attempt to have the color and definition of "The Robe" as satisfying as ever before seen on the screen. I'm pleased with what they've done, and here's what two outstanding cameramen from other studios have to say about it, after seeing about half the picture screened:

Joseph Ruttenberg, ASC: "I thought the scenes from 'The Robe' were grand, wonderful, great. CinemaScope produces a great new effect. The color is natural, and shows up as well as any I've seen."

Arthur Miller, ASC: "I'm especially impressed with what is being accomplished with colored lights in CinemaScope. 'The Robe' is in excellent photographic taste. There's no doubt that the public will welcome this new kind of cinematography."

I'm enthused about CinemaScope, too, because it along with stereophonic sound create a real marriage of picture and sound. Mr. Zanuck made a wise and courageous decision when he agreed with Spyros Skouras to shoot all future 20th Century-Fox pictures in this medium.

Whatever success "The Robe" has—and I think it will be the largest grosser of all time—will be due to the combined efforts of many imaginative and industrious artists, including my camera assistants, Lee "Red" Crawford and Harvey Slocum, and my operator, Irving Rosenberg, the man who has had to learn to see as CinemaScope sees.

Henry Koster and I have learned while shooting "The Robe" that CinemaScope is most effective if the characters, not the camera, do the moving. If the camera is moved too much it

wastes the ability of our lens to see more at once than ever before.

The cameraman's job in CinemaScope is harder than it was before—but worth it. Now we have to light about twice as wide a stage as we previously did, yet avoid the shadows of three or more microphones. We have to be conscious during shooting of what everyone within camera range is doing. We have to think in terms of keeping every bit of the set "alive," as we don't know which part audiences will be looking at.

The CinemaScope lens is perfectly capable of giving fine definition in virtually every situation, but it should be employed according to the different properties of a CinemaScope lens, not as if it were the usual type. All sorts of moving shots are still being used, and used well, but more often than not the camera remains motionless, as movement is unnecessary.

Yes, "The Robe" will be a cause and effect film. CinemaScope should cause a record audience to go and see it, and the effect for good should be tremendous.

2-D, 3-D WIDE-SCREEN

(Continued from page 212)

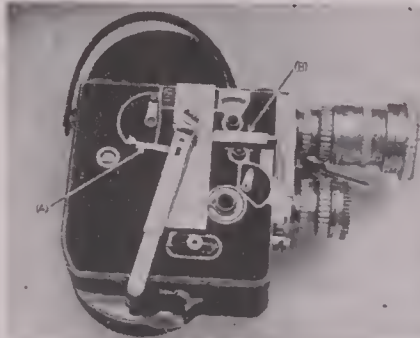
the screen from the projection machine is magnified approximately four times by the screen in re-transmitting the light to the viewing audience. The screen can be adapted to a size comparable to the dimensions required in any theatre.

Studio engineers emphasized at the press demonstration of the process that no special projectors or lenses are required. The projectors used were standard theatre projectors. The lenses, also standard, were of a wider angle than those normally used in theatres, but generally available.

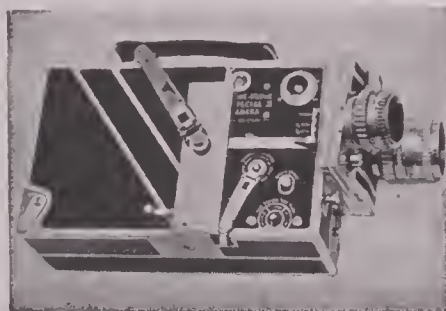
The studio's demonstration of both 3-D and wide-screen projection on this screen was impressive. To demonstrate how conventional films appear when screened at the 1.85 to 1 aspect ratio, footage from the previously released "World In His Arms" was screened first in the standard screen size, then in the wider format. In the latter, the overall screen brightness was uniform and detail sharp over the entire screen area. Subsequently, a portion of the studio's latest color production, "Thunder Bay," was screened and comparisons shown in the two projection ratios.

All U-I pictures, it was reported, henceforth will be photographed with a view to wide-screen presentation. Thus, directors of photography at this studio will compose all scenes with consideration for the 1.85 to 1 aspect ratio

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in both regular and three-dimension photography.

Columbia—The wide-screen development of this studio, previously described, involves an aspect ratio of 1.85 to 1—the same as that adopted by Universal-International Studio. After numerous tests, Columbia's laboratory and research departments selected the 1.85 to 1 ratio as corresponding almost exactly to the second dynamic rectangle of 1.73 to 1, which has been the scientific gauge for what the eye can see in one glance, both in optics and painting.

Studio camera finders are being fitted with masks which show the new aspect ratio. Made of transparent colored plastic, the mask enables the cameraman to view the scene in the standard format, and at the same time compose it for the narrower limits required for wide-screen presentation.

Additionally, Columbia wide-screen and 3-D productions will have stereophonic sound, now considered essential for films of both types.

Metro-Goldwyn-Mayer—Based on what it claims to be the most ideal ratio for general use in the nation's theatres, MGM's engineers have adopted 1.75 to 1 as the aspect ratio recommended for screening the studio's film productions, both 2-D and 3D. The studio has carefully examined prints of all its film backlog, and has found that all the pictures can be screened satisfactorily in this new format.

As have other major studios studying the new trend, MGM has set up what it believes to be the ideal curved, wide-screen on one of its sound stages, where its engineers have been conducting exhaustive tests not only with wide-screen, but in 3-D and CinemaScope, which it is considering employing for super wide-screen productions. Like other majors with a vast backlog of films, the development of a moderate wide-screen presentation method is a protective measure and now insures profitable exhibition of all standard MGM productions yet to be released.

In the meantime, John Arnold, the studio's executive director of photography, is said to be quietly working on a revolutionary new method of wide-screen movie making wherein pictures will be photographed in wide-format with a new-type camera. One of Arnold's main objectives is to reduce grain in wide-screen projection of color films. An interesting note is the fact MGM will make no more black-and-white pictures. Henceforth, all productions will be photographed in Technicolor, AnscoColor, or Eastman color negative.

Warner Brothers—At this writing, this studio's activities are practically at a standstill. Having concentrated on three-dimension productions, studio's

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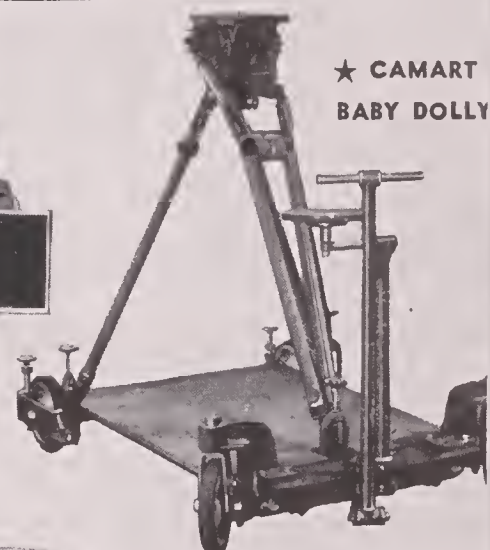
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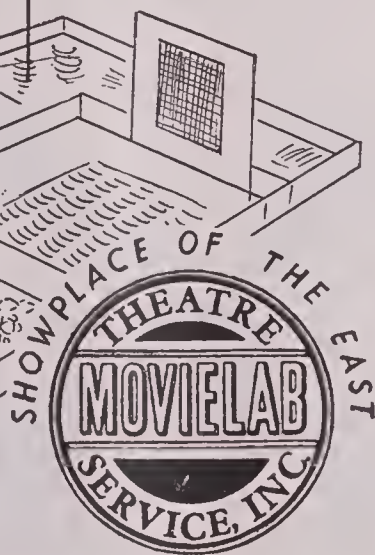
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initial 3-D film, "House of Wax," is enjoying phenomenal response in theatres throughout the country. In Hollywood and Los Angeles, "House of Wax" was projected at an aspect ratio only very slightly wider than the conventional, and this cannot be considered a true wide-screen 3-D presentation.

Studio engineers are non-committal on whether or not Warner Brothers Studio is developing anything in or even considering wide-screen presentation of its films.

RKO-Radio—Like Warner Brothers, RKO-Radio Studio appears content to go along with regular three-dimension as the only innovation in its current film production program. So far, no wide-screen experiments or developments have been announced, and studio engineers say that nothing is contemplated in this direction for the present.

In summarizing this newest development of the motion picture business—coming as it has on the heels of three-dimension—wide-screen is definitely a valuable adjunct to the presentation of motion pictures in the theatre. It is especially effective in the presentation of 3-D films because of the apparent decrease in frame size which takes place when 3-D pictures are screened in the normal or standard aspect ratio of 1.33 to 1. Screening stereo films in a wider, more horizontal format greatly minimizes this defect.

In this discussion, we have chosen the term *wide-screen* as descriptive of a method of film presentation in which the aspect ratio of the original film frame is changed *in projection*; this obviously excludes such processes as Cinerama and CinemaScope, both of which are definitely wide-screen, and which we have chosen to call here *super wide screen*.

For the director of photography, the decision of a studio to make its pictures with wide-screen presentation in mind introduces no problem other than the slight change in composition that must take place when lining up each shot in the camera finder. Other than this, no changes in lighting, exposure, or camera movement is involved.

3-D CAMERA

(Continued from page 215)

camera from blimp for more detailed photographs.) With the possible exception of the Stereo-Vision 3-D camera, which utilizes two Eclair Camerettes mounted in opposed position, Columbia's stereo camera is a smaller, more mobile instrument which shoots straight on without the use of mirrors

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or prisms. Two Mitchell cameras are mounted side by side, one inverted, in order to bring the lenses into the close proximity necessary. However, unlike other cameras which have mounted two Mitchells in this manner, the film magazines of both units are on top.

The two Mitchells are mounted on flat base plates, which permit them to be moved in and out of the blimp at the rear to afford access to camera mechanisms for inspection and film threading. Complete freedom for working with the cameras between shots is further insured by the novel disappearing door at the back of the blimp. After door is unlocked it slides upward and disappears into the blimp.

By racking over the two cameras—one moves to the left and the other to the right—two viewfinder tubes are inserted between the cameras permitting binocular viewing of the scene through the camera lenses. This enables the cameraman not only to line up his shots but to compose them for proper convergence and interaxial spacing for the stereoscopic effect desired. Aiding in this operation is a vertical pole on a flat base having different colored bands and a focusing chart. This is placed in the set at a point where the lenses are to converge and also where

point of sharpest focus is to be. When this alignment-focusing-convergence operation is completed, the finder tubes are removed and the cameras racked over to taking position. To permit variable convergence, one of the cameras is so mounted on its base that it may be rotated in a limited arc.

Convergence and interaxial as well as focus is controlled by shafts extending from the cameras to exterior of blimp. Control knobs and dials are conveniently located at either side of the blimp. Also, a standard Mitchell finder is mounted on the left side and is coupled with the lens mechanism to facilitate correct viewing of the scene as seen by the taking lens, with the necessary correction made for parallax. Still another control located just beneath the finder permits precise follow-focus on moving camera shots. The lens mechanisms of the two cameras are, of course, synchronized and interlocked.

The Mitchell finder is fitted with a combination mask (pictured elsewhere in this issue) which defines both the standard Academy aperture and the new 1.85 to 1 ratio which Columbia has adopted for its wide screen releases. The latter mask is made of transparent celluloid tinted amber, and

serves to show the critical limits for vertical composition of scenes where the production is to be released also for wide-screen exhibition.

Because both recording cameras shoot straight on without the aid of prisms or mirrors, two standard negatives are produced which do not require reversal or optical treatment of any kind in the process of making the pairs of stereo prints. The advantage of this method is at once obvious. From these negatives the laboratory may turn out conventional or "flat" prints of the production; using both negatives, it can provide the dual prints necessary for stereoscopic presentation. If either production is to be exhibited wide-screen, this decision rests, of course, with the respective exhibitor. An inspection of a frame of either one or both of the negatives made by this camera would show it to be the same physical size as any made for conventional 2-D exhibition. The wide-screen aspect is given the picture in projection, as described elsewhere in this issue.

Gerald Rackett has pointed out that Columbia's 3-D camera is not the sole result of one man's effort, but is the product of the combined research and efforts of himself, Emil Oster, ASC, Columbia's camera department head,

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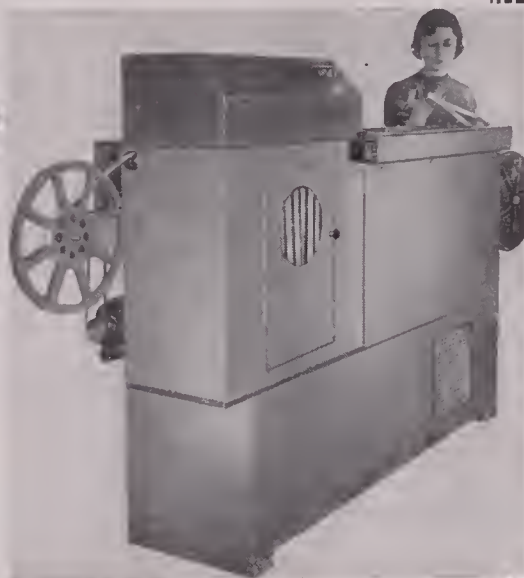
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and John Dyrst of Columbia's engineering department. "In designing this camera," says Mr. Rackett, "the importance of good 3-D closeups was considered of paramount importance. As a result, we can make individual head closeups—chin to forehead—with ease and without any distortion."

The camera accommodates the full range of conventional lenses, from 18mm to 150mm. With some reduction in aperture, the shorter lenses used with the camera allow for increased depth of focus, while extreme closeups can be made with the 150mm lens; this gives greater roundness to closeups, making them superior to those of the present flat screen, Mr. Rackett declared.

Initial tests of the new camera were made on Columbia's "Man In the Dark," 3-D Technicolor production now in general release; but further important improvements were made in the camera before it was placed in the hands of Charles "Buddy" Lawton, ASC, who is currently directing the photography of Columbia's color production. "Miss Sadie Thompson."

TV FILMS

(Continued from page 220)

dramas for Flying A. Productions.

WILLIAM MELLOR, ASC: "Adventures of Ozzie and Harriett" series of 1/2-hr. situation comedies for Volcano Productions.

JOE NOVAK: "Roy Rogers" series of 1/2-hr. western adventure films for Roy Rogers Productions.

KENNETH PEACH, ASC: "Ramar of the Jungle" 1/2-r. jungle adventure series for Arrow Productions; also "Cowboy G-Men" series of 1/2-hr. westerns for Telemount Pictures, Inc., and "Mr. and Mrs. North" series of 1/2-hr. dramas for Federal Telefilm, Inc.

ROBERT PITACK, ASC: "Private Secretary" series of 1/2-hr. comedies for Jack Chertok Productions.

JOHN L. (JACK) RUSSELL, ASC: Alternates with William Bradford, ASC, on "Death Valley Days" for Flying A. Productions.

MACK STENGLER, ASC: "The Liberace Show" series of 1/2-hr. musical telepix for Snader Telescription Corp.

ALAN STENSOLD "Smilin' Ed's Gang" series of 1/2-hr. detective dramas for Frank Ferrin Productions.

HAROLD STINE: "The Red Skelton Show" series of 1/2-hr. comedy telefilms for Key Productions.

CHARLES STRAUMER: "The Hank McCune Show" series of 1/2-hr. situation comedies for Video Pictures, Inc.

WALTER STRENCE, ASC: "My Little

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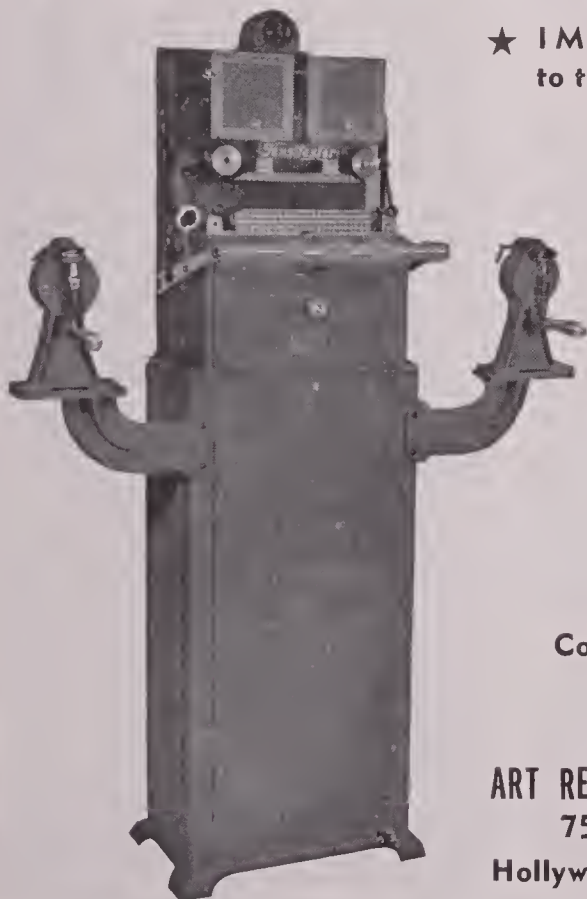
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Maigie" series of 1/2-hr. situation comedies for Roland Reed Productions.

PHILIP TANNURA, ASC: "The Burns and Allen Show" series of 1/2-hr. situation comedies for The McCadden Corp.

STUART THOMPSON, ASC: Photographs three different series of 1/2-hr. shows for Sovereign Productions: "Your Jeweler's Showcase," "General Electric Theatre," and "Cavalcade of America."

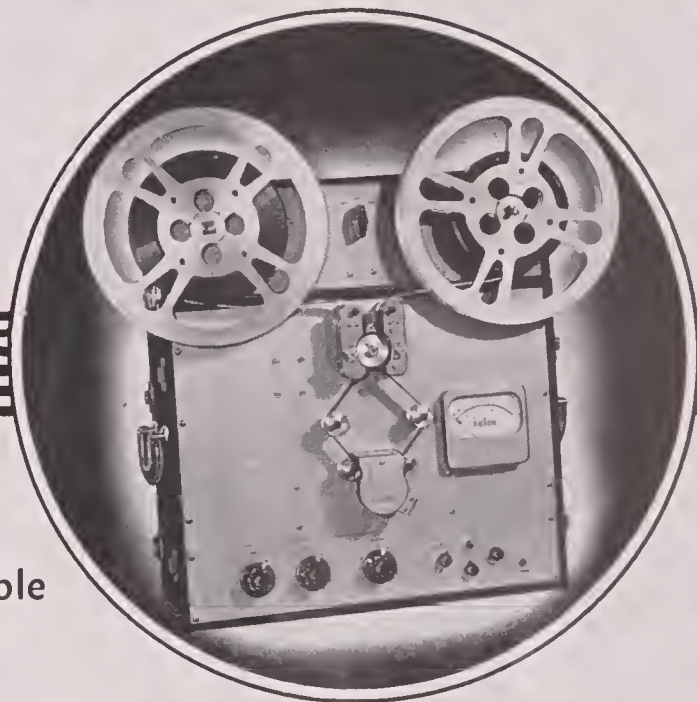
JAMES VAN TREES, ASC: "You Bet Your Life" — weekly 1/2-hr. audience participation show with Groucho Marx, for Filmcraft Productions. Among the above-named cinematographers are at least four who may be considered "pioneers" in the field of TV film photography—considering that the industry got onto firm ground only about four years ago. These are Kenneth Peach, who got his first TV film assignment with Jerry Fairbanks, and shot many of the "Public Prosecutor" and "Front Page Detective" films. The real pioneer and probably the first one in Hollywood to shoot a TV film series was Jerry Fairbanks himself. It was Fairbanks who saw the future of film in television long before anyone else and who backed up his hunch by shooting a complete TV film series, "Jackson and Jill," for NBC. The name of Lester White, ASC, not mentioned in the listing above (he's currently on contract with Columbia Pictures shooting 3-D) also belongs among the pioneers. It was he who took over photography of Fairbanks' initial film series, when the activity expanded and consequently demanded more of Fairbanks' time in organizational matters.

William Bradford, perhaps, has as long a record as a photographer of TV films as any cameraman in the industry. He photographed the first TV film to garner an Emmy Award of the Academy of Television Arts and Sciences, and continued filming the series for sometime. This was the series sponsored by Lucky Strike cigarettes, and produced by Grant-Realm Productions in 1949. Subsequently, Bradford was signed by Gene Autry's Flying A Productions to direct the photography of its initial series of TV films. In 2 1/2 years, he has photographed approximately 160 TV films for this company.

Walter Streng, another TV film pioneer, has been Roland Reed's director of photography for many years. Having shot most of the commercial and religious films produced by this company, he photographed the company's first TV pilot films, and has shot almost every TV film the company has produced to date. Besides

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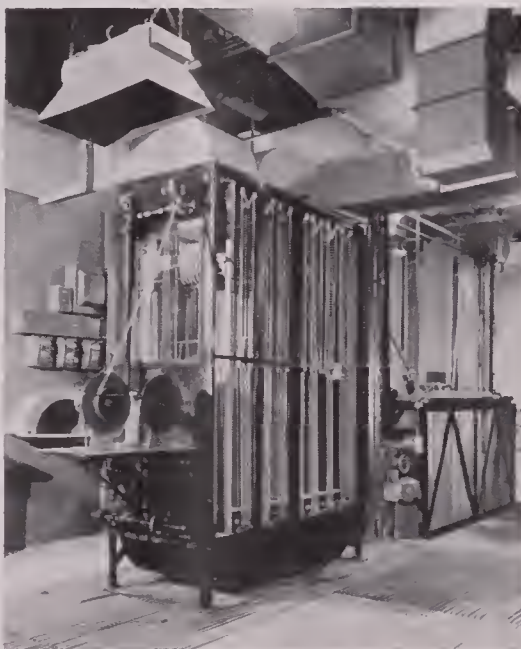
more than 300 commercials, Strenge has shot 271 TV films for Roland Reed. These include 48 in the "Great Men and Women in America" series, begun July 29, 1949; the pilot film of the "Life of Riley" series in November, 1949; 40 Snader Telescriptions; 94 films in the "Trouble With Father" series; 18 in the "Mystery Theatre" series; 33 in the "Beulah" series; and, to date, 40 films in the "My Little Margie" series, which he continues to photograph weekly.

Early in 1949, Benjamin Kline was called in to photograph a pilot film for Frank Wisbar—the film that started the present "Fireside Theatre" series. To date, Kline has shot more than 175 films in this series. But his record includes more than "Fireside Theatre." Before he photographed

Frank Wisbar's pilot film, he had already shot the first 6 of the "Rebound" series for Bing Crosby Enterprises. Later he godfathered the entry of several other film series in the fast growing world of TV film production, including the first 6 "Racket Squad" films for Hal Roach; the first 6 "Amos 'n Andy" TV films, also for Hal Roach, and the initial group of TV films for Screen Televideo, now known as Sovereign Productions. In between shooting "Fireside Theatre," Kline photographs an occasional feature film production "just to keep my hand in the other phase of the business," he says. He will shortly photograph his first 3-D film in color, then resume shooting "Fireside Theatre."

Among the newer members of the TV film photographers' fraternity are

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General Film Labs. Corp. boasts latest film processing equipment for 16mm and 35mm films.

The property and plant, formerly occupied by the laboratory of Paramount Studios, was bought from the studio last September by G. Carleton Hunt and Hans de Schulthess. Following the purchase, more than \$500,000 was spent on refurbishing the plant and installing the industry's most modern equipment.

This enables the new company to offer feature film and TV film producers and editors the most complete processing and editing facilities in the industry. Included in the services offered by the new lab are 16mm Kodachrome printing, reduction equipment for 35-32mm and for 35-16mm.

New equipment also provides for handling up to 2,000,000 feet of 16mm black-and-white positive and 400,000 feet of negative. Four projection rooms are being equipped to show both flat and 3-D films, and 20 cutting rooms have been prepared for editorial service.

The board of directors of the new corporation is headed by G. Carleton Hunt, president; Hans de Schulthess, vice-president, and Alton A. Brody, director of sales. Brody also maintains his association as West Coast representative for De Luxe Laboratories of New York. Gordon Youngman, former vice-president in charge of studio operations at RKO, becomes a member of the Board of Directors. Bob Goodwin is treasurer of the company.

Harlan Baumbach, formerly with Technicolor and Paramount, is technical director, while William Gephart, formerly with the Paramount lab, has been named processing director.

ORGANIZATION of General Film Laboratories Corporation, Hollywood, and the start of operations at its multi-million dollar film processing plant to meet the expanding needs of motion picture and television film industry was officially announced last month by G. Carleton Hunt, president of the corporation.

The huge plant, encompassing 70,000 square feet of operational space and two acres on the southeast corner of Argyle and Selma, will give the West Coast its newest and largest independent film laboratory. It will have a capacity of processing 5,000,000 feet of 35mm black-and-white positive and 1,000,000 feet of 35mm negative film a week.

such well-known names as William Mellor, ASC, who won an Academy Award last year for the photography of "A Place In The Sun;" Charles Lang, ASC, also an Academy Award winner (for photography of "A Farewell To Arms" in 1933); Karl Freund, ASC, whose photography of "The Good Earth" netted him an Academy Award in 1937; and Clyde DeVinna, ASC, an Oscar winner in 1929 for "White Shadows In The South Seas."

With such talented experts now directing the photography of television films—and this includes all the men named in the preceding list—it is obvious why the general image quality of TV film programs shows such tremendous improvement over what it was 12 to 18 months ago. The industry's wisdom in choosing only the best men in the realm of cinematography to shoot its TV films is now paying off in a greatly improved product with consequent increased audience attention.

As some sage so aptly put it: "There is no substitute for experience."

An agreement to supply 20th Century-Fox with large quantities of anamorphic optical units for CinemaScope has been announced by Bausch & Lomb Optical Co.

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READY-EDDY

(Continued from page 222)

Although the Ready-Eddy is most useful to the motion picture film editor and cutter, it has been adopted as an important work instrument and reference guide by others in the industry, including executives, script writers, and film laboratory technicians, and projectionists. "Today, a Ready-Eddy computer invariably will be found in the majority of film studio cutting rooms, labs, and projection rooms, on a desk or near a telephone, or hanging by a string from a cameraman's tripod or dolly," says Roger. It is small enough to be carried in one's pocket or a woman's purse.

The computer has three separate scales—F, M, and S representing "footage," "minutes," and "seconds" respectively. The F scale is on one side and occupies the entire side of the disk; the M and S scales are on the opposite side. The F or footage scale gives data for 35mm and 16mm film in lengths from 1 to 90 feet. By referring to this scale it is possible to tell at a glance the number of seconds of screen time and the number of frames for 35mm film; also the minutes and seconds of screen time plus the number of frames for a given length of 16mm film. For example: with the indicator set at 90 ft. it will be seen that this length of 35mm film will screen for 60 seconds, and comprises 1440 frames. The equivalent footage in 16mm film will screen for 2 minutes and 30 seconds, and have a total of 3600 frames.

The minutes and seconds scale on the opposite side has many uses. The TV spot announcement film producer, for example, may wish to know how many

Henry Roger, designer of the Ready-Eddy, is a motion picture pioneer, inventor of the first camera used for aerial photography, and one of the first scientists to employ photography in research work in other fields. In 1923 he introduced the use of cinematography in studying living cells of tissue and blood. In this endeavor he was associated with Dr. Alexis Carrel at the Rockefeller Institute for Medical Research.

Wherever his film "The Structure of Living Cells" has been shown, it has created sensational response. Today, his Microcinematographic Apparatus and interval exposure control for time-lapse cinematography are in use in many of the leading research laboratories in this country and abroad. — EDITOR.

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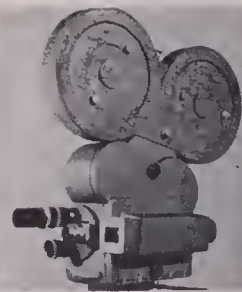
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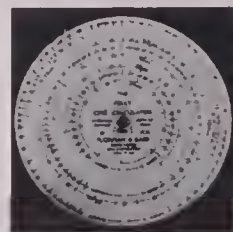
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frames of single-frame animation he must produce in order to make a TV film for a specified running time. A glance at the chart with the S scale set at 10 seconds (for a 10 second spot announcement) shows this time interval requires 240 frames of either 35mm or 16mm film (sound speed).

The M scale furnishes comparative footage data for 16mm and 35mm films. Also, where the footage factor is known, the minutes in screen time for the given footage can be seen at a glance in the slit of the indicator when rotated to the desired footage mark. An example of the use of this scale is best illustrated as follows: One wishes to determine the projection time of a reel of 35mm film, when the exact length in feet is known. Say this is exactly 1000 feet. The indicator is rotated until the figure nearest to 1000 appears in the slot immediately below the figure "35"—in this case, 990. The answer in minutes of screen time (11) appears in the slot at the far left. Where an optical reduction print to 16mm is to be made of this footage, the exact length of the 16mm print—396 feet—is revealed in the indicator slot set at the above described position.

The Ready-Eddy is particularly useful to those in the business of making television commercial films and spot announcements, where accurate timing is most essential, especially where lap-dissolves, animation, and action cued precisely to music or voice all are involved.

"It is of immense value to others in the TV industry, also," Mr. Rogers said, adding "especially to program directors, musical arrangers, animators, and to those involved in buying and selling time for TV films where one cannot afford to make errors even in fractions of seconds."

ART DIRECTION

(Continued from page 224)

When shooting movies at the beach where everything in the foreground is generally flat and uninteresting, pictorial emphasis can be given scenes by photographing through a silhouette pattern set close to the camera. By utilizing one or two planks, a few sticks collected on the sand, and a rock or two, you can change the scene and make it appear it was shot from beneath an old pier—as illustrated in Fig. A at 1 and 2. Additionally, in seashore scenes, you can easily enhance pictorial quality by including gulls, which you can readily attract by putting out bits of food at a point outside camera range.

Invariably, adding something to the scene will lend interest to what a mo-

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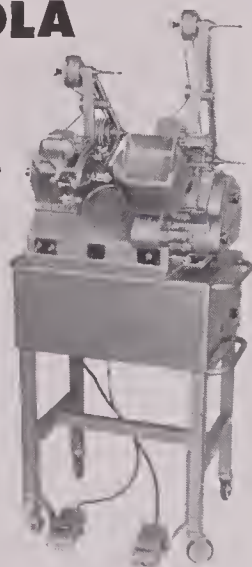


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ment before may have seemed static and commonplace. But you must have the imagination to visualize what is needed and the willingness to work to achieve it. Don't be afraid to go to the top of a building, where possible, or to shoot from some other high vantage point, if in so doing you gain an unusual or improved composition. Art direction is not all "putting physical elements into the scene." Often you accomplish the desired result simply by studying your composition in the camera finder, moving about from one position to another until the desired composition comes into view.

Many an excellent color film has been produced in a flower garden, but the trick here is to avoid the static "post-card" type shot and compose scenes with strong compositional emphasis to offset the lack of action in the scene. Often life and action can be *implied* in such scenes by including props or elements that suggest recent action or existence of some person. Take for example a flower garden setting, with flowers and shrubs lining a path. Putting a watering can prominently in the foreground with a splash of fresh water on the path and the nearby shrubs would suggest that a person had recently been watering there. How much more appealing is a shot of this kind than a straightforward snapshot of flowers! It is this sort of thought and planning that distinguishes award-winning movies from the also-rans.

When shooting the children at play or at Christmas time, scatter toys about—make the scene look alive. Kids *do* scatter their toys in play. Why not make the scene *look* natural?

When shooting interiors, study the scene carefully and see what you can *take out* of the composition, as opposed to the practice of putting things into the scene, which we have been considering until now. You will be surprised how many things you can remove from the scene or room to improve pictorial

composition! This method is used by many interior decorators.

Good art direction in film making involves nothing more than using your camera finder much as the painter-artist uses his brush and pigments plus his head to *make* compositional masterpieces. If you make every scene in your films distinctive and different, your films are bound to rise above the commonplace and gain for you deserved reward.

TERROR IN 3-D

(Continued from page 219)

Regarding modification of standard lighting techniques to fit 3-D, Marley feels that few radical changes are necessary. "It's still a matter of the right light in the right place," he says, but goes on to advise against lighting which is too contrasty, since this style of illumination, because of the innate parallax characteristics of the 3-D system, could produce an unpleasantly distracting effect.

On the other hand, while it is true that relatively flat lighting can be used successfully because the 3-D process itself lends depth to the figures, he still prefers a well-rounded, richly modelled lighting. His work in "House of Wax" proves that this type of illumination, coupled with the mechanics of the system itself, produces the greatest possible illusion of depth. Such a result is especially effective in the climatic low-key sequences staged in the dimly-lighted, deserted wax museum. The strategic use of shadow and modelled light in this setting lends an atmosphere of impending horror that adds forcefully to the suspense of the action.

At present, the choice of lenses is somewhat restricted by the mechanics of the technical set-up. A 40mm is about the widest angle lens that can be successfully used. This is due not so much to distortion, as one might expect, but rather to the fact that because the twin cameras cannot be mounted closely enough together, a wider angle lens might show edges of the mirrors used prismatically to reflect the images. Pev Marley feels that these mechanical limitations can and will be overcome, so that lenses of 30mm or wider can be used. The standard 50mm remains the most popular lens for lending normal perspective to ordinary medium shots, while a 75mm or 100mm is considered ideal for close-ups.

The distance between the eyes of the average person is 2 1/2 inches. This is called the *interocular* distance. In stereoscopy, the distance between lenses

of the two cameras approximates the interocular distance of human vision, and is termed the *interaxial*. Thus the twin lenses of the 3-D camera function similarly to two eyes to reproduce images in three-dimension.

"In ordinary shooting we rigidly maintain the interaxial distance in our lens set-up," Marley points out, "but there are times when, for special effect, we may vary it. In a long scenic shot, for example, distant objects tend to flatten out just as they would to the eye. However, by widening the interaxial distance, as represented by the lenses of the cameras, we actually force the perspective so that the distant landscape takes on depth.

The problem of parallax convergence is an ever-present one for the 3-D cameraman. If a slight miscalculation is made, the result may be a double image in the background of the scene. This is especially true in the closeups. For this reason, Marley suggests that action patterns be planned so that in the *master or full shot* principal actors be maneuvered close to a wall or other nearby object. In this way a cut can be made to the closeup without encountering the parallax problem.

Marley estimates that a set-up in 3-D takes about 10% longer than required for a flat picture. However, since there are generally less cuts in the average 3-D film—and therefore fewer set-ups—shooting actually goes faster. As technicians become more familiar with the process, it is expected that even greater savings in shooting time can be effected.

Pev Marley has found that with a few exceptions, camera movement is not restricted in 3-D filming, and he feels that any problems relating to fluid camera technique can be worked out by means of careful pre-planning. Zoom shots are not practical as yet, and there is the inevitable parallax problem when the camera moves past foreground objects; but boom shots with both horizontal and vertical movement work quite well.

Pev Marley started his career as a director of photography with the filming of Cecil B. deMille's film classic, "King of Kings"—a picture still regarded as a masterpiece of cinematography. It is an interesting coincidence that Marley (together with George Barnes, ASC) won the Hollywood Foreign Correspondents' Association Golden Globe award this year for the color photography of still another de Mille production, "The Greatest Show on Earth."

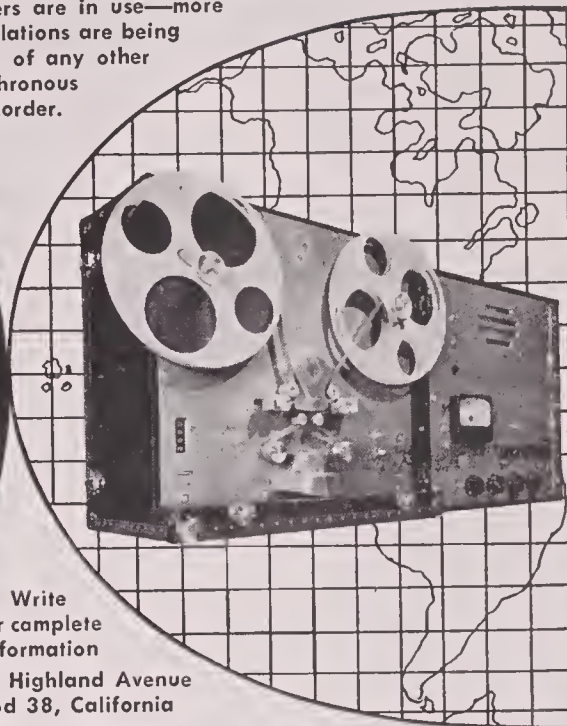
Marley has just completed his second
(Continued on page 245)



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Current Assignments of A.S.C. Members

Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

Allied Artists

- HARRY NEUMANN, "The Maze," (3-D) with Richard Carlson and Veronica Hurst. Wm. Cameron Menzies, director.

Columbia

- BURNETT GUFFEY, "From Here To Eternity," with Burt Lancaster, Montgomery Clift, Deborah Kerr, Frank Sinatra, Donna Reed, Ernest Borgnine, Barbara Morrison, Philip Ober, and Mickey Shaughnessy. Fred Zinnemann, director.
- CHARLES LANG, "The Big Heat," with Glenn Ford, Gloria Grahame, Jocelyn Brando, Lee Marvin, Peter Whitney, Linda Bennett, Chris Alcaide, Norma Randall, Adam Williams, Dorothy Green. Willis Bouchee, Howard Wendell and Edith Evanson. Fritz Lang, director.
- CHARLES (BUDDY) LAWTON, "Miss Sadie Thompson," (Beckwith Corp.) (3-D Technicolor) with Rita Hayworth, Jose Ferrer, Aldo Ray, Rudy Bond, Henry Slate, Peter Chong and Charles Buchinski. Curtis Bernhardt, director.
- HENRY FREULICH, "Charge of The Lancers," (Esskay Pictures) (Technicolor) with Paulette Goddard, Jean Pierre Aumont, Karin Booth, Ben Astar, and Gregory Gay. William Castle, director.
- LESTER WHITE, "I Ride Alone," (3-D Technicolor) with Randolph Scott, Claire Trevor, Joan Weldon, George Macready, Lee Marvin, Roscoe Ates, Alfonso Bedoya and Ernest Borgnine. William Castle, director.
- FRANK PLANER, "Scalpel," with Charlton Heston, Lisabeth Scott, and Dianne Foster. Irving Rapper, director.

Metro-Goldwyn-Mayer

- RAY JUNE, "Easy To Love," (Technicolor) with Esther Williams, Van Johnson, Tony Martin, John Bromfield, and King Donovan. Charles Walters, director.
- ROBERT SURTEES, "Rope's End," with William Holden, Eleanor Parker, Polly Bergen, John Forsyth, and Richard Anderson. John Sturges, director.
- PAUL VOGEL, "Half A Hero," with Red Skelton, Jean Hagen and Polly Bergen. Don Weis, director.

Paramount

- LOYAL GRIGGS, "Elephant Walk," (Technicolor) with Elizabeth Taylor, Dana Andrews, Abraham Sofaer, Peter Finch, Mylee Haulani, and Noel Drayton. William Dieterle, director.
- LIONEL LINDON, "Those Sisters From Seattle," (Pine-Thomas Prods) (3-D Technicolor) with Rhonda Fleming, Gene Barry, Agnes Moorehead, Jean Parker, Guy Mitchell, Teresa Brewer, The Bell Sisters and Roscoe Ates. Lewis R. Foster, director.

Republic

- JOHN RUSSELL, "The Champ From Brooklyn," with Alex Nicol, Audrey Totter, Charles Winninger, Hope Emerson, Joseph Wiseman, Barry Kelley, Jess White, Grant Withers, Eddie Waller, Henry Morgan, and Horace McMahon. William A. Seiter, producer-director.

R.K.O.—Radio

- WILLIAM SNYDER, "Second Chance," (3-D Eastman Color) with Linda Darnell, Robert Mitchum, Jack Palance, Milburn Stone, For-

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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tunio Bonanova, Rudolpho Hoyos, Jr. Rudy Mate, director.

- NICK MUSURACA, "Arizona Outpost," (3-D Eastman Color) with Virginia Mayo, Dale Robertson, Stephen McNally, Arthur Hunnicutt, Rober Keith, Jay C. Flippen, Whit Bissell, William Phillips and Morris Ankrum. Alfred Werker, director.

20th Century-Fox

- LEON SHAMROY, "The Robe," (CinemaScope, Technicolor) with Richard Burton, Jean Simmons, Victor Mature, Michael Rennie, Dean Jagger, Betta St. John, Jeff Morrow, Michael Ansara and Nicholas Koster. Henry Koster, director.
- JOSEPH MACDONALD, "How to Marry A Millionaire," (CinemaScope, Technicolor) with Betty Grable, Marilyn Monroe, Lauren Bacall, William Powell, Rory Calhoun, David Wayne, and Cameron Mitchell. Jean Negulesco, director.
- EDWARD CRONJAGER, "Twelve-Mile Reef," (CinemaScope, Technicolor) with Terry Moore, Robert Wagner, Gilbert Roland, J. Carrol Naish, Harry Carey, Jr., Jacques Aubuchon, Angela Clarke and Peter Graves. Robert D. Webb, director.

- JOSEPH LASHELLE, "Be Prepared," with Clifton Webb, George Winslow, and Frances Dee. Henry Levin, director.

Universal-International

- WILLIAM DANIELS, "Brady's Bunch," (Technicolor) with Maureen O'Hara, Jeff Chandler, Suzan Ball, John McIntire, Charles Drake, Noah Berry, Jr., Jay Silverheels, Dennis Weaver, and Jim Bannon. George Sherman, director.
- RUSSELL METTY, "Tumbleweeds," (Technicolor) with Audie Murphy, Lori Nelson, Chill Wills, K. T. Stevens, Russell Johnson, Madge Meredith, and Roy Roberts. Nathan Juran, director.
- CARL GUTHRIE, "Ma and Pa Kettle Hit The Road Home," with Marjorie Main, Percy Kilbride, Alice Kelley, Alan Mowbray, Brett Halsey, Emory Parnell, Oliver Blake and Stan Ross. Charles Lamont, director.
- CLIFF STINE, "Wings of The Hawk," with Van Heflin, Julia Adams, Abbe Lane, George Dolenz, Antonio oreno, Rudolfo Acosta. Budd Boetticher, director.
- MAURY GERTSMAN, "All-American," with Tony Curtis, Lori Nelson, Richard Long, Palmer Lee and Paul Cavanaugh. Jess Hibbs, director.

Warner Brothers

- CARL GUTHRIE, "Three Sailors and a Girl," (Technicolor) with Jane Powell, Gordon MacRae, Gene Nelson, and Sam Levene. Roy del Ruth, director.
- SIDNEY HICKOX, "Blowing Wild," (U. S. Pictures) with Gary Cooper, Barbara Stanwyck, Ruth Roman, Anthony Quinn, and Ward Bond. Hugo Fregonese, director.
- PEVERELL MARLEY, "The Charge At Feather River," (3-D, Warner Color) with Guy Madison, Frank Lovejoy, Vera Miles, and Dick Wesson. Gordon Douglas, director.

Independent

- DANIEL FAPP, "Money From Home," (Hal Wallis Prod.) (3-D, Technicolor) with Dean Martin, Jerry Lewis, Richard Haydn, Pat Crowley, Gerald Mohr. George Marshall, director.
- FLOYD CROSBY, (World Films, Inc.) with Rod Cameron, Tab Hunter, Richard Erdman, John Dehner. E. A. DuPone, director.
- GILBERT WARRENTON, "The Great Jesse Raid," (Robert L. Lippert Prod) (Anso-Color) with Williard Parker, Barbara Payton, Tom Neal, Wallace Ford. Reginald Le Borg, director.
- JOHN ALTON, "I, The Jury," (Parklane Prods.) (3-D, Color) with Biff Eliot, Peggie Castle, Margaret Sheridan, Preston Foster. Harry Essex, director.
- JOSEPH BIROC, "The World For Ransom," (Plaza Prods.) with Dan Duryea, Marion Carr, Reginald Dennt, Patric Knowles, Douglass Dumbrille. Robert Akdrich, director.
- ELLIS CARTER, "Captain John Smith and Pocahontas," (3-D, Color) with Anthony Dexter, Alan Hale, Jr., and Robert Shayne. Lew Landers, director.

TERROR IN 3-D

(Continued from page 243)

3-D film for Warner Bros., "The Charge at Feather River." This is an outdoor epic in three-dimension in which the audience will catch a thrown knife between the eyes, and suffer similar 3-D fates. Marley is enthusiastic about the stereo technique as a story-telling medium, and cannot praise too highly Mr. M. L. Gunzburg, head of Natural Vision Corp., and his technicians who were so very helpful and co-operative in the filming of the two features.

Commenting on the third-dimensional trend, Marley says simply: "In 3-D you can tell where everything is in relation to everything else, just as in real life. I guess you could use a lot of high-flown words to describe stereo—but when you boil it right down, it's just plain more *impressive* than a flat picture."

"Futurewise," according to Pev Marley's reckoning, "3-D plus a fairly wide screen, plus stereophonic sound will be it!"

WHAT'S NEW

(Continued from page 206)

2nd floor. Third floor is devoted to cinematography, recording and editing. Several other departments are soon to be moved to fifth floor.

Low-cost Meter—Saul Bower, Inc., 114 Liberty St., New York 16, N.Y., announces company is now U.S. distributor of the popular palm-sized European-made Minirex II photoelectric exposure meter.



It has a range of shutter speeds from 1/1000 second to 2 minutes; diaphragm stops from f/22; film speed ratings from 10 to 100 ASA. Price is \$9.95.

3-D Previewers — SOS Cinema Supply Corp., 602 W. 52nd St., N.Y. City, offers complete projection units for previewing 3-D films. Included are 2 projectors, 2000' magazines, coated lenses, 1000-w lamp-houses.

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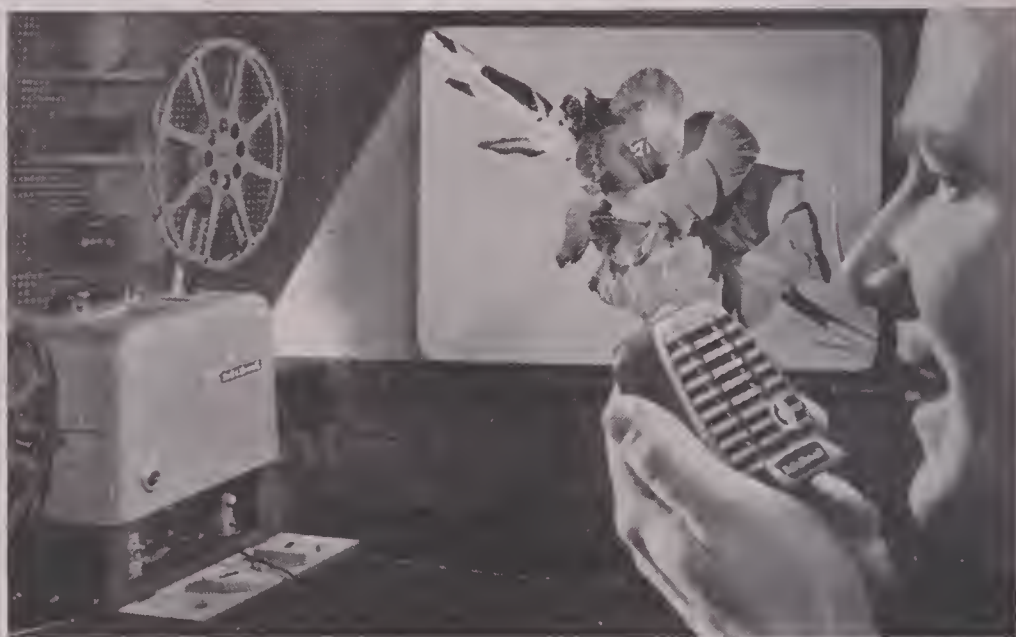
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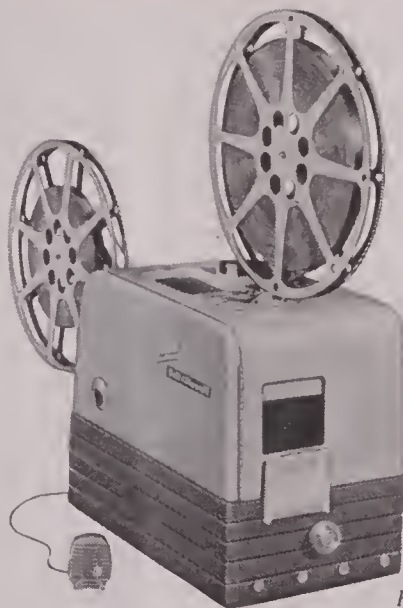
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AMERICAN

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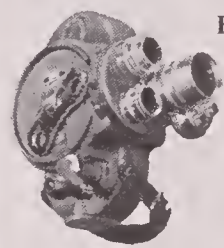
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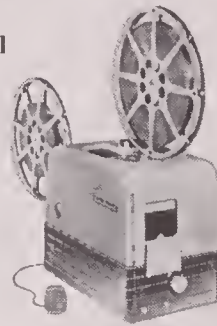


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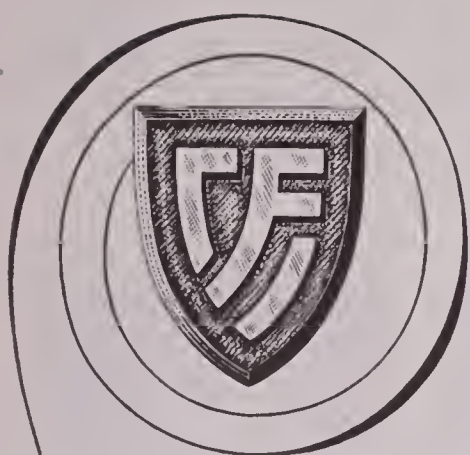
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PUBLICATION OF AMERICAN SOCIETY OF CINEMATOGRAPHERS

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JUNE • 1953

NO. 6

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ON THE COVER

HAPPY CREW—Director of photography Burnett Guffey, ASC, (left, sitting), director Fred Zinneman, assistant cameraman Bob Uhl, operator Kit Carson, script supervisor Charles Bryant and other crew members resting between takes on set of Columbia Pictures' "From Here To Eternity." The man with the sun glasses is star Burt Lancaster.—Photo by Irving Lippman.

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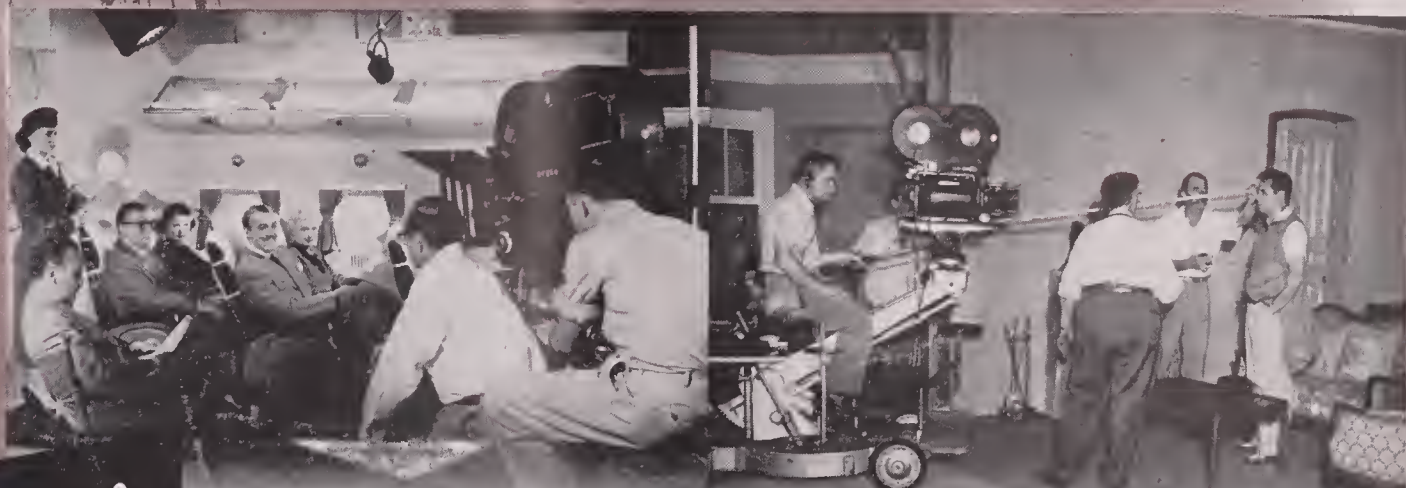
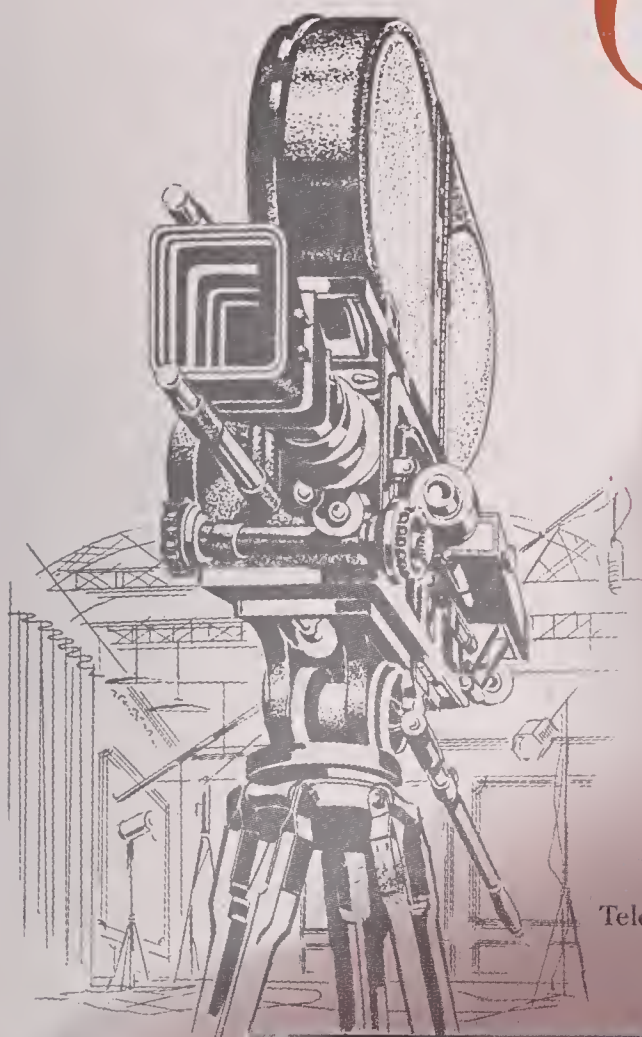
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Tom Kelley Studios shoots a TV commercial for North American Airlines with this Mitchell 35 "NC". Cesar Ramero is shown at center.

One of three Mitchell 35mm "BNC" Cameras used by Desi Productions on the "I Love Lucy" series with Desi Arnaz, right, and Lucille Ball.

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Bulletin Board



R. A. SHERMAN of Bausch & Lomb Optical Co. (left) is introduced to members of the A.S.C. by Society vice-president Arthur Miller, preceding former's talk on 3-D at the A.S.C. clubhouse last month.

R. A. SHERMAN, Director of Occupational Vision, Bausch & Lomb Optical Co., was guest of honor at the ASC's May meeting when he discussed the effects of TV on human vision. "When properly made and projected, 3-D movies have beneficial effects on the eyes," Mr. Sherman told ASC members. Properly photographed 3-D films, he said, are those in which soft focus effects and out-of-focus photography is avoided. "These contribute to a disturbance of the relationship between focusing and visual convergence in members of the audience," Sherman said.

LEE GARMES, ASC, in association with actor John Ireland, has co-directed and photographed a western feature in color, using the twin-Camerette 3-D system of Stereo-Cine Corporation.



George S. Barnes, ASC

VETERAN director of photography George S. Barnes, ASC, died May 30th in Hollywood of complications following abdominal surgery.

A top cinematographer for the past 35 years, Barnes numbered the Academy Award-winning "Rebecca" among his numerous credits. Among the most recent was DeMille's "The Greatest Show On Earth," for the photography of which both he and Peverell Marley, ASC, were presented with the 1953 Golden Globe

Award for best color photography.

Barnes directed the photography of top-budget films for majors and independents, his most recent associations being with Paramount and RKO-Radio studios. He was 60 years old at the time of his death. He is survived by his widow, Margaret, two sons, and two daughters.

A. COMA, export manager for Ets. Cine Eclair, Paris, manufacturers of the Camerette, was a Hollywood visitor last month. According to Mr. Coma, his company will introduce the Eclair 35mm Studio camera at the SMPTE convention in New York City next October.

PETER L. SHAMRAY, an associate member of the ASC, died May 12 in Los Angeles at the age of 59. He had been technical representative for DuPont's motion picture film division in Hollywood since 1927. Shamray's work in the motion picture field began in Hollywood in 1913. As a laboratory technician and later a superintendent, he was associated with D. W. Griffith, Fine Arts Film Co., Triangle-Keystone, and the Majestic company.



Peter L. Shamray, ASC

STANLEY CORTEZ, ASC, is one cinematographer who draws the line at no hazard where realistic photography is concerned. He recently photographed the John Rawlins-U-I production, "Shark River," in record time, most of it in the swamp country of Florida, with alligators a constant menace. Previously, he directed the photography in Eastman Color of Frank Melford's "The Diamond Queen," starring Fernando Lamas and Arlene Dahl.

PHIL TANNURA, ASC, has been signed to direct the photog-

(Continued on Page 298)



FOUR TECHNICAL EXPERTS get together for an informal chat at the A.S.C. clubhouse preceding the Society's monthly dinner-meeting in Hollywood last month. From left to right are: John Copstaff, Eastman Kodak Co.; Sidney Solow, Consolidated Film Industries; Tom Howard, Special Effects, MGM-London Studios; and Earl Sponable, research engineer, 20th Century-Fox studios.

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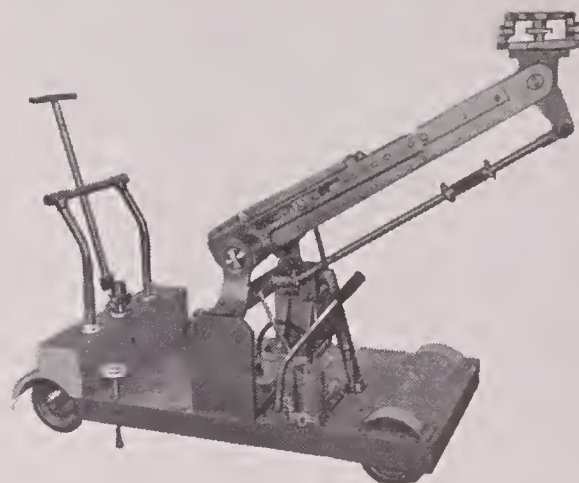
For motion picture and TV cameras. Sturdy cast aluminum. For standard or baby tripods. Additional baby tripod point holders to control spread of tripod legs. Adjustable spring seat. Extra wide rubber wheels. Bronze tie down clamps and other features.

For studio or location. Folds into one compact unit. Can be used with professional or semi-professional tripods.

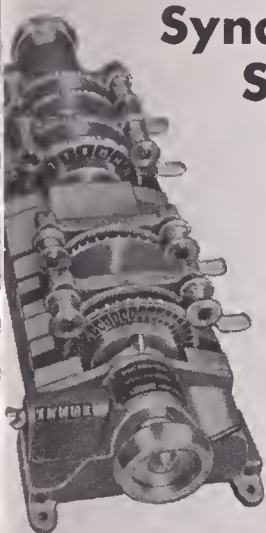
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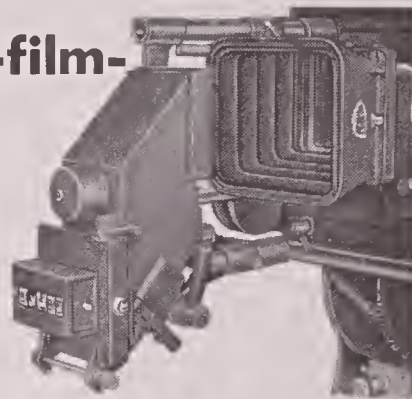
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Operator can push the boom and oper-

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cable hangs outside of boom, preventing cable from tangling
with the rotation mechanism. Ball bearing casters, rigid foot
locks, pneumatic drop check for lowering the boom, etc.

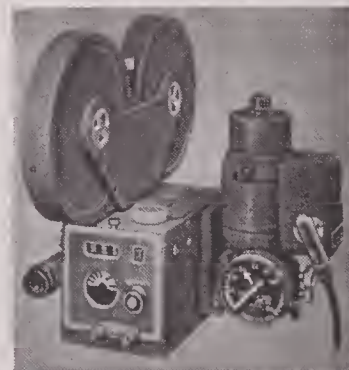
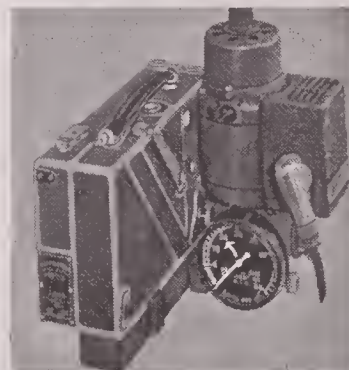
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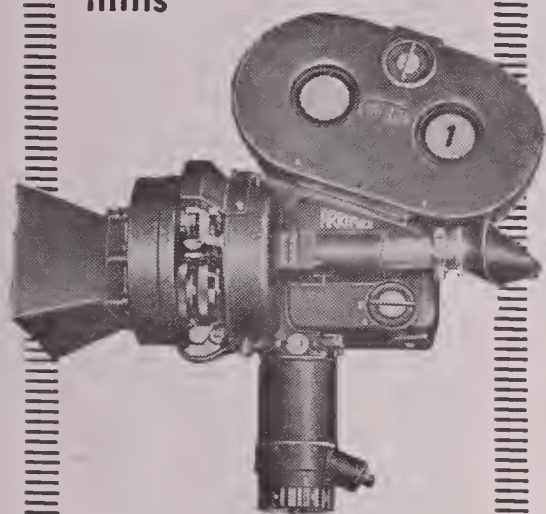
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WHAT'S NEW

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600-ft. Magazines For Cinevoice—Florman & Babb, 70 West 45th St., New York 19, N.Y., offer a king size film magazine for the Auricon Cinevoice 16mm sound camera, giving the professional film maker the advantage of bulk negative supply. The magazine accom-



modates 400-ft. and 600-ft. rolls of film on cores, as well as standard 100-ft. and 200-ft. daylight loading spools.

Magazine has a noiseless auxiliary takeup motor, velvet-action friction clutch and an insert plate that insures smooth, steady film movement. Use of the magazine does not involve alteration or cutting of camera.

Complete information and price may be had by writing the company, and mentioning *American Cinematographer*.

Film Timer — The Camera Mart, Inc., 1845 Broadway, New York 23, N.Y., is distributing the Camart Electric Film Timer for use in film editing, dubbing, post-recording, narrating, and other film production purposes.

Unit may be permanently connected to projector or film recorder, and wired to start and stop in unison with either machine. Two models are available for 110-v, 60 cycle AC. at \$145.00 and \$165.00.

Tripod Triangle — Kadisch Camera and Sound Engineering Co., 500 West 52nd St., New York 19, N. Y., announces a new collapsible tripod triangle con-

structed of heavy aluminum channels and panels. A feature is the special locking device which secures the three tripod legs to the triangle. This prevents tripod legs from "jumping" out of the triangle sockets whenever triangle is moved.

Illustrated brochure and prices are available by writing the company and mentioning *American Cinematographer*.

Zoom Finder—Camera Equipment Company, 1600 Broadway, New York City, announces it will distribute the zoom-type finder for cameras designed by Fred Parrish, Hollywood motion picture equipment engineer.

The finder is adaptable to the Filmo, Victor, Bolex and similar 16mm cameras and is calibrated from 15mm to 6-inches. The same finder also is avail-



able for use with single-lens Eyemos and small-turret Eyemos. These are calibrated from 25mm to 6-inches.

Inquiries east of Chicago should be addressed to Camera Equipment Company; those in the west to Fred Parrish, 10851 Fairbanks Way, Culver City, California.

New Telephoto For 16mm—Bell & Howell Company, Chicago, announces a new 3" f/3.5 telephoto lens for 16mm motion picture cameras. New lens replaces company's 3" f/4 Telate, and has improved performance and mechanical features.

Lens carries easy-to-read, standard spread-out iris scale having a range from f/3.5 to f/22. Click stops assure positive setting. Depth of field scale is

(Continued on Page 258)



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The ideal 35mm movie camera for TV Newsreel, Industrial, Travel and Scientific Motion Picture Photography.

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- Easily detachable matte box-filter holder.

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No camera is better suited for stereo adaptation than is the Arriflex 35, known everywhere for rock steady pictures . . . every frame in precise register. It is the least expensive camera in the field, the lightest in weight, it easily couples to synchronomotor, and in every other way it is the simplest and most economical way to 3-D movie making.

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28mm f/2 Schneider Xenon*	90mm f/3.5 Kilar
50mm f/2 Schneider Xenon*	135mm f/3.8 Kilar
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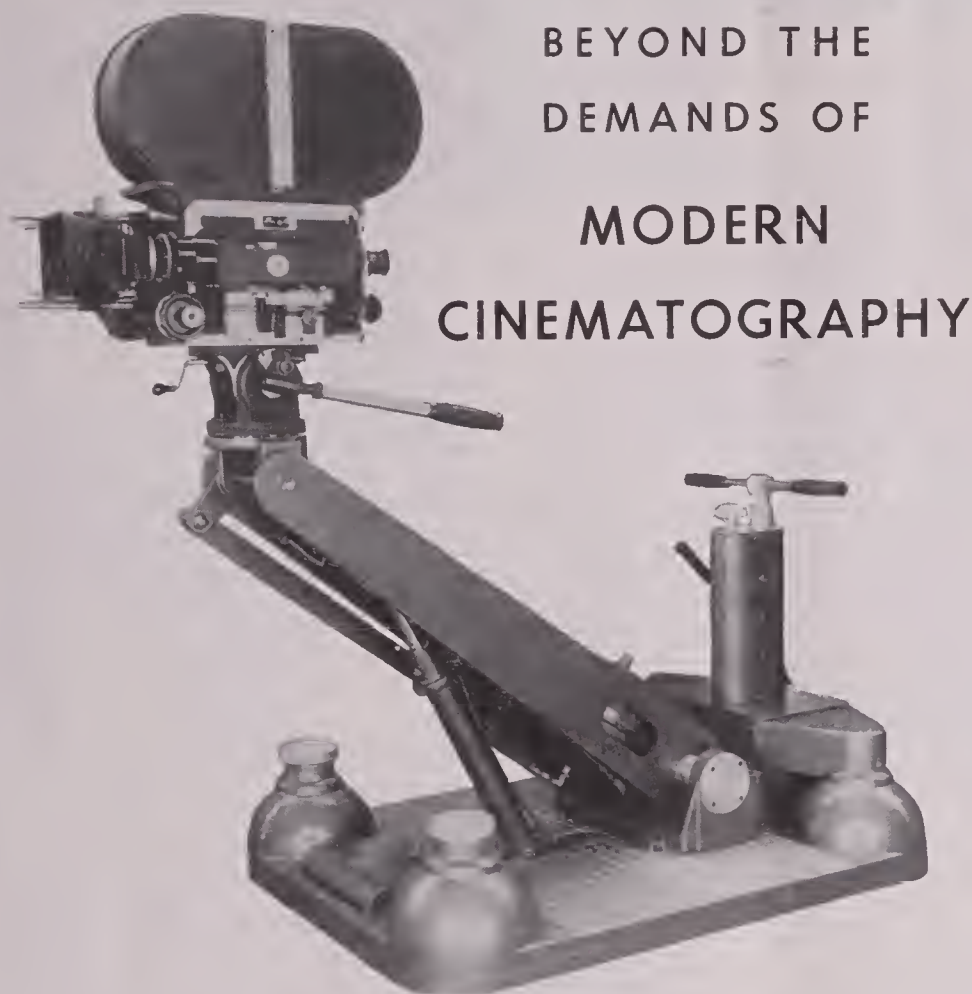
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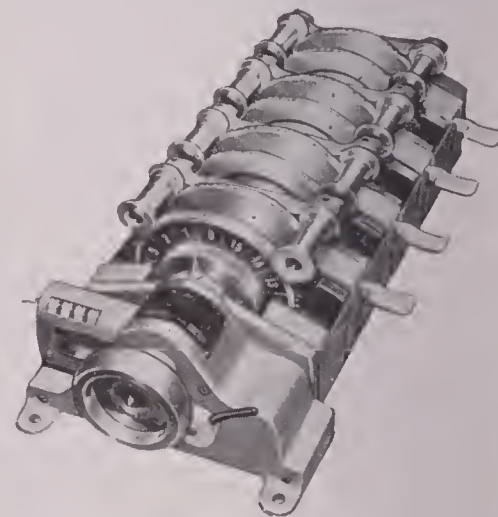
(Continued from Page 256)



inscribed in red for easy identification. A metal lens cap and sunshade is supplied. Retail price is \$79.95.

Film Synchronizer — Neumade Products Corp., 330 West 42nd St., New York 36, announces the Synchronmaster film synchronizer as the latest addition to company's long line of well-known film handling equipment.

Invaluable for all types of film syn-



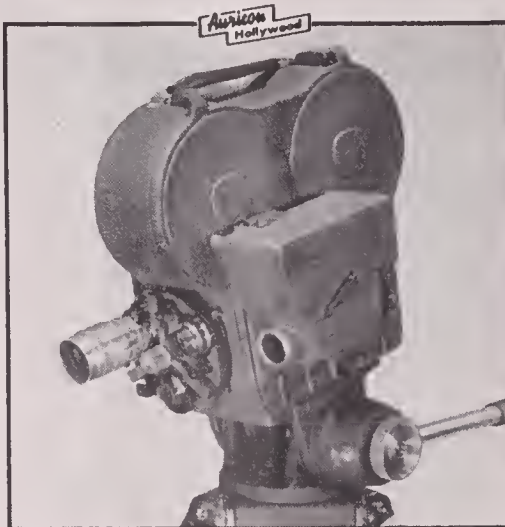
chronization for studio, laboratory, and film exchange. Synchronmasters are available in 2, 3, and 4 hub models for both 16mm and 35mm film. Five and 6 hub assemblies are available on special order as are also combination machines for the handling of 16mm and 35mm films simultaneously.

Descriptive brochure and price sheet are available by writing the company and mentioning *American Cinematographer*.
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AURICON 16 mm Sound-On-Film for Professional Results!



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"CINE-VOICE" 16 mm Optical Sound-On-Film Camera.
★ 100 ft. film capacity for 2¾ minutes of recording; 6-Volt DC Converter or 115-Volt AC operation. ★ \$695.00 (and up).

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SOUND RECORDER—Model RT-80...200 foot film capacity, daylight loading, synchronous motor for portable "double-system" 16 mm Optical Sound-On-Film operation. ★ \$862.00 (and up).

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DUAL PHONO-TURNTABLE—Model DPT-10...Takes up to 16 inch discs with individual Volume Controls for re-recording music and sound effects to 16 mm Sound-On-Film. ★ \$161.15



TRIPOD—Models FT-10 and FT-10S12... Pan-Tilt Head Professional Tripod for velvet-smooth action. Perfectly counter-balanced to prevent Camera "dumping." ★ \$325.00 (and up).

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If it's profit you're after in the production of 16 mm Sound-On-Film Talking Pictures, Auricon Cameras provide ideal working tools for shooting profitable Television Newsreels, film commercials, inserts, and local candid-camera programming. Now you can get Lip-Synchronized Sound WITH your picture at NO additional film cost with Auricon 16 mm "Optical" Sound-On-Film Cameras. Precision designed and built to "take it." Strictly for Profit — Choose Auricon!

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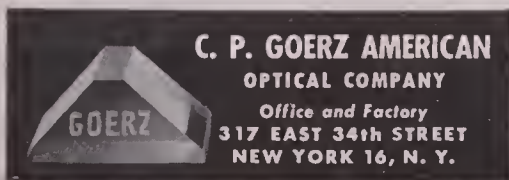


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3-D

and WIDE SCREEN News Roundup

Poromount studio technicians have completed first production tests with a new wide-angle camera-lens which takes in a view of 74 degrees, greater than any wide-angle lens used to date. Only Cinarama, accumulating multiple angles by use of a three lens recording camera, gives wider coverage.

A new 3-D process, developed by R. E. Schensted of Marshalltown, Iowa, was demonstrated last month before a number of Hollywood studio executives. Process is said to permit full-scale production of 3-D color films at moderate cost, and was developed over 15 years ago.

3-D and wide screen projection has put a new demand upon makers of carbon arcs in order to furnish greater volume of lamphouse illumination for theatre projection.

Wide screen exhibition of films isn't anything that movie exhibitors couldn't have developed themselves, had they paid less attention to popcorn sales and more to giving patrons better and newer entertainment. And to prove it, one exhibitor has done just that. He is Albert M. Pickus, Stratford, Conn., theatre owner who has built and installed his own screen for showing films with a wide-angle lens in an aspect ratio of about 1.66 to 1.

A new system of 3-D photography and projection which uses one film strip, one camera and one projector has been introduced in Hollywood by veteran cinematographer-technician, Friend Baker, who engineered the Natural-Vision 3-D camera. Demonstration of new process in 16mm was given members of the American Society of Cinematographers recently.

Stereophonic sound has been dropped from the presentation of Columbia's 3-D "Fort Ti" in Paramount theatre, Hollywood, because of the extra cost involved. Stereo sound required a third operator in projection booth—as provided by Projectionists' union.

Wide screen movies go back to the infancy of the industry, according to

SMPTE president Herbert Barnett, who says that a 98-foot screen was built and used in 1899. In the 30's, an outdoor panoramic screen was constructed on the curved wall of a building. It was beaded, and about 33 feet high and 196 feet in width!

3-D films have been showing in Budapest since July, 1952. The system used is that developed by Hungarian cameraman Feliz Brodrossy. It is a single-film method employing polarized light. But spectators do not wear spectacles; instead, they view the pictures on the screen through polarizing filters mounted on back of the seats in front of them.

Using stereo in trick fashion to show off the technical potential of the new screen system, instead of applying the process solely to telling the motion picture story to the best advantage, will kill the novelty, and public interest in it, within a short time, says Rudolph Mate, ASC, who directed RKO's 3-D feature, "Second Chance."

20th Century-Fox has purchased Hurley Screen Co. of Long Island. Latter will now manufacture studio's Miracle Mirror screen used in exhibition of CinemaScope pictures. Screen, which has been in production at rate of 24 a day will now be stepped up to 72. Miracle Mirror screen sells for \$3.00 per sq. ft. as compared to about \$1.10 for the ordinary theatre screen.

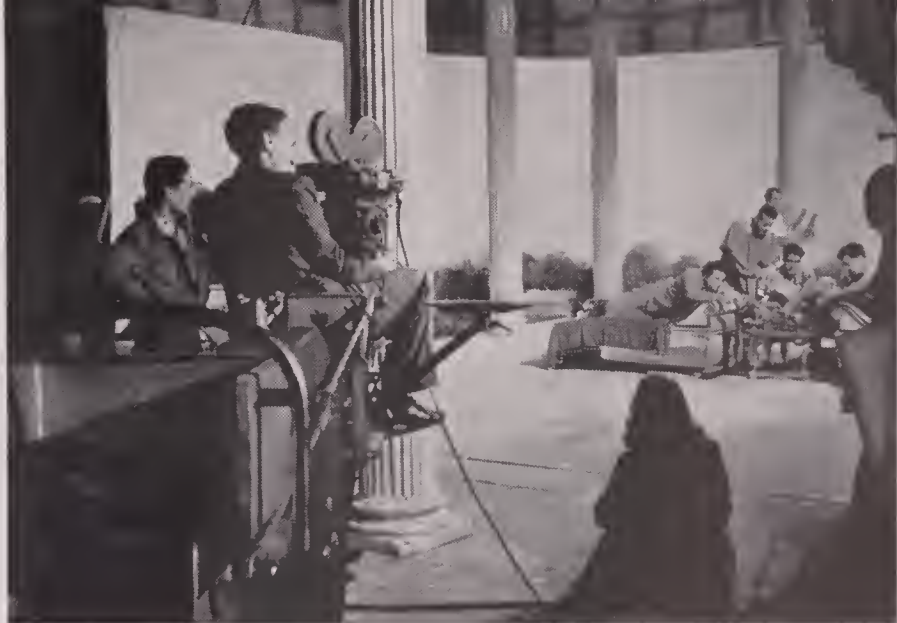
Cineramo has developed a method of reducing its three-print, three-projector system down to a single 35mm print which can be wide-screened with a single projector fitted with a wide-angle lens. Improvement is aimed at giving "general release" to Cineramo productions now restricted to special exhibitor installations.

Special effects for 3-D productions are now common practice in Hollywood. More than 1500 feet of special effects in 3-D have been completed at Eagle-Lion studios for Al Zimbalist's 3-D science-fiction feature, "Robot Monster."



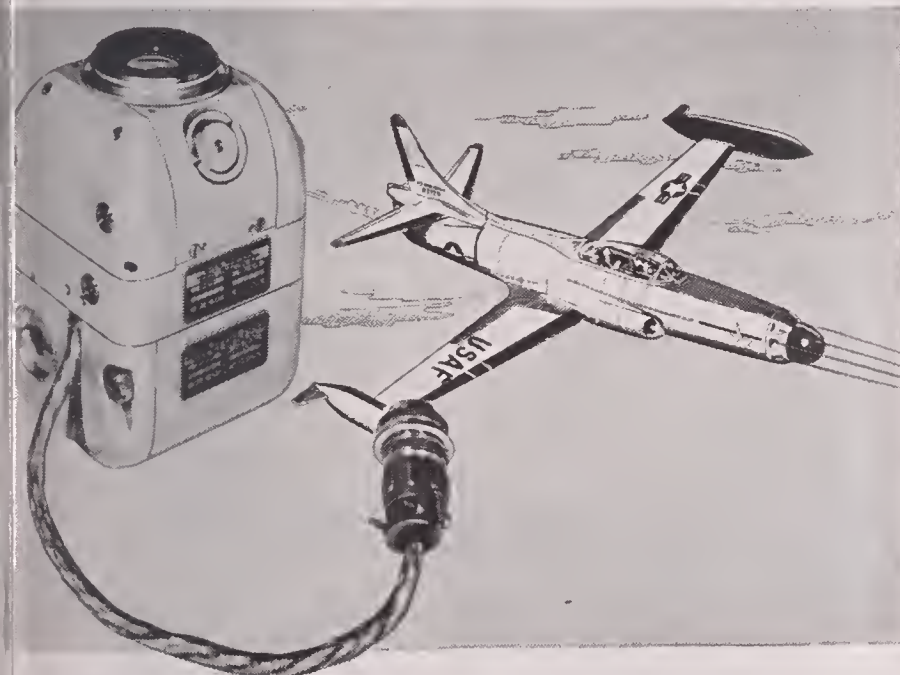
GREAT WHEN THE GOING IS ROUGH!

Knowing that his equipment would take a terrific beating from heat, humidity, and the roughest kind of terrain, Lt. Kenneth M. Elk of the U. S. Army Signal Corps chose the Maurer 16mm as the camera best qualified to document the Elk-Combs African Expedition. The Maurer 16mm offers you the utmost in accuracy—in quality—in simplicity of operation. Quite naturally, it is first choice in the professional field.



THE MAURER 16mm IN ROME

When Ken Richter makes a foreign-location documentary for a firm like Reed and Barton, Silversmiths...you can expect to find the Maurer "16" on the job. To the public, this sequence illustrates "The Romance of Silver Design." To the professional it proves the better results achieved with the camera designed for professional use...the Maurer "16."



COMBAT PHOTO RECORDS FROM WORLD'S FASTEST FIGHTERS...

Something special in the way of a camera for recording impact and destruction by a jet fighter's weapons, is the Maurer P-2 illustrated. The P-2 meets specifications of the Photographic Reconnaissance Laboratory of the Air Research and Development Command—yet is only one-third the weight of any previous type camera designed for this function.



MAURER 16mm AT WORK FOR THE JAPANESE GOVERNMENT

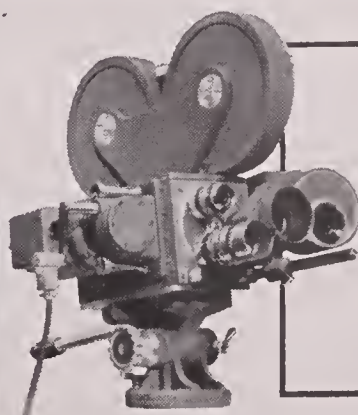
Ian Mutsu, President of the International Motion Picture Company, Tokyo, makes films for the Japanese Government, and United Press-Movietone TV Newsreel. "Thoroughly satisfied with the Maurer '16'," says Mr. Mutsu...as do all the world's top professionals...because it meets so many varied needs, gives top performance under all conditions of light, temperature and humidity.

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HOW TO ELIMINATE **NOISE** ON
THE NEW SOUND SETS?



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OF ARC-LAMP NOISE...QUICKLY DEVELOP IMPROVED
"NATIONAL" LIGHTING CARBONS FOR
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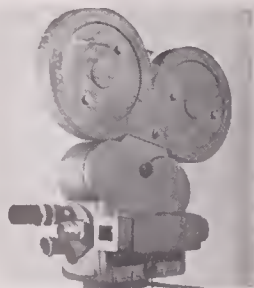


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SHOOTING an exterior scene for "Venture Into Faith," 16mm feature-length dramatic film in color. Here studio-type reflectors flank

camera on either side to throw fill light into the scene. In center background, wearing white cap is producer-director Herb A. Lightman.

Major Studio Techniques In 16mm Film Production

Behind the filming of "Venture Into Faith" is an exciting story of production achievement and the solving of some unique problems including the lighting of an audience of 15,000 people for color photography.

By CHARLES LORING

"THE PICTURE is to be a feature-length dramatic film with a modern religious theme. It will be entirely lip-syne dialogue, shot in 16mm Commercial Kodachrome. And by the way, for the climatic sequences, you'll have to figure out a way to light for color photography the interior of a tent seating 15,000 people. It's important that we show all of them in one shot."

The man making the above statement was L. E. "Pete" White, head of the White Advertising Agency, one of the largest in the Mid-west. The man doing the listening was Hollywood producer-director Herb A. Lightman, head of Devon Productions. The picture they were discussing in

that conference several months ago is now being launched in roadshow presentations throughout the country. Titled "Venture Into Faith," it has been called by critics "the greatest dramatic religious film ever made."

Behind the filming of this one hour and 32 minutes of sound and color is an exciting story of production achievement and the solving of some unique technical problems, many of which had to be overcome without the benefit of precedent.

The central figure in "Venture Into Faith" is the world-famous evangelist, Rev. Oral Roberts. This dynamic minister conducts a series of monthly campaigns in selected locales through the country. The campaigns are held in

what is actually the largest tent in the world, larger in floor area than the famous Ringling Brothers' "Big Top." In a typical campaign, this great tent cathedral is filled each night for 16 nights with crowds ranging from 12,000 to overflow attendance of 25,000. The main challenge to the producer was to capture on film the vast scope of these meetings—while at the same time embodying the uniquely intimate, warmly human essence of Oral Roberts' ministry. The success of these objectives is evidenced by the tremendous audience response the film is enjoying. Not only do audiences alternately laugh and cry unashamedly as the dramatic story unfolds, but each viewer seems to take with him something of the uplifting spirit of the film.

Mr. White's decision to assign the film to a Hollywood producer was brought about by his and Rev. Roberts' desire that the film be made with the greatest possible degree of professional finish. They figured correctly that only Hollywood know-how exemplified by major studio technicians and production methods could achieve this result.

The film is not a documentary, but actually a dramatic photoplay based on a true-life story. For this reason and for better control of the action, it was decided that the bulk of the dramatic sequences would be filmed on the sound stage—while the sequences showing the tent meetings would be shot wherever the campaign happened to be in progress at the time—in this case, Birmingham, Ala. Since the entire script is devoted to the story of a single typical American family seeking Faith—and since the family would appear also in the tent sequences, it was evident that not only technicians but the principal players of the cast, as well, would have to go on location to Birmingham.

The Birmingham sequences presented enormous technical problems. It is a well-known fact that Cecil B. De Mille had shipped many tons of lighting and generator equipment to shoot tent sequences away from the studio for "The Greatest Show On Earth." In addition, he had available the full technical facilities in the industry—plus *unlimited budget*. By contrast, the producer of "Venture Into Faith" was faced with having to shoot sequences of equal magnitude on a budget that was greatly limited, to say the least.

The producer and cameraman hied themselves to New York to gather lighting and technical equipment needed for the Birmingham shooting. The budget allowed for rental of only about one third the number of lighting units that should have been used to do the job ideally. Much plotting indicated, at least on paper, that with proper placement and overlapping of light units, the equipment engaged could be made to cover. When presented with this diagram in Hollywood, chief gaffer Roy Black gave a long low whistle, then admitted that while nothing like this had ever before been done, he felt that by dint of much prayer and luck it might actually be possible. These elements, coupled with long experience, plus a good supply of old-fashioned elbow grease put out by Roy Black, two other Hollywood gaffers, and several master electricians hired locally, produced the result. An area 330 ft. by 210 ft. was lighted with only 20 Senior (5 kw) lamps and 10 Sky Pans, to permit an adequate exposure in the long shots of f/2.

But lighting was not the only major problem. The plain truth of the matter was that while a film of sweeping magnitude was to be filmed in Birmingham, the main purpose of the meeting was to hold a religious campaign. Film or no film, nothing could be allowed to intrude into the solemn atmosphere of the religious services.

This meant that shooting had to be done as unobtrusively

(Continued on page 290)

LIGHTS AND CAMERA are rolled into position for closeups of Rev. Oral Roberts in action on the platform. Scene was shot while evangelist was lecturing in Birmingham, Alabama.



MAJOR PROBLEM was lighting this vast tent—bigger than any circus big top—in order to photograph the huge audiences that listened nightly to evangelist Oral Roberts.



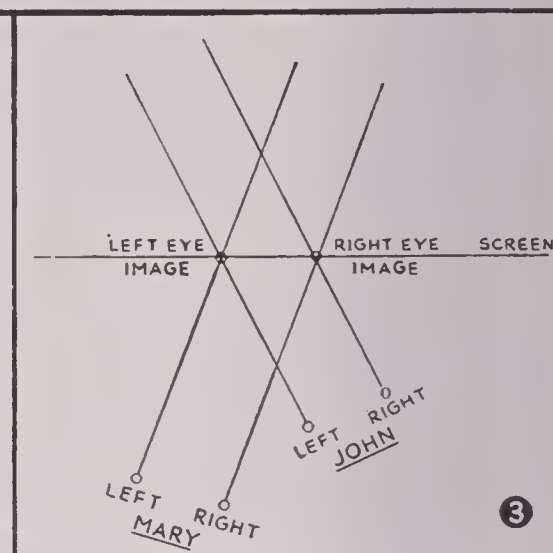
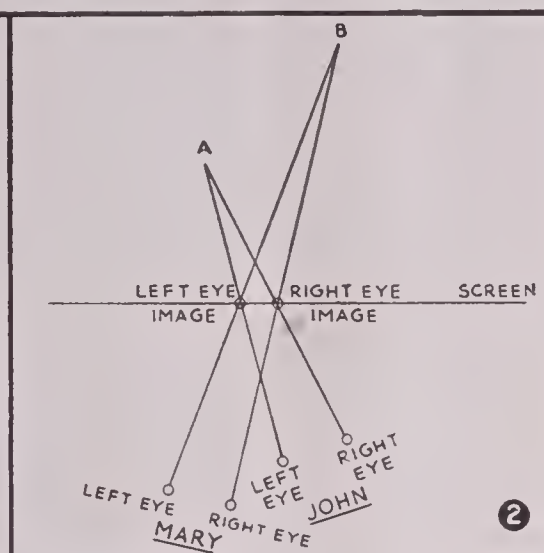
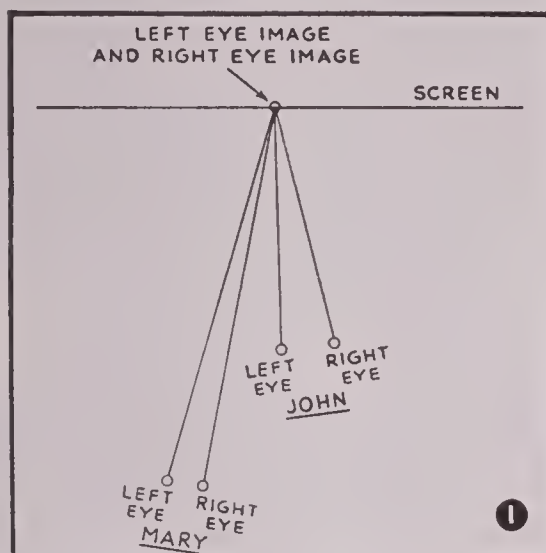
SENIORS AND SKY PANS were mounted high on the central tent poles to give ample light coverage for the many long shots that were made inside the tent on 16mm color film for "Venture Into Faith."



Some Basic Principles Of 3-D Cinematography

THE DIAGRAMS below, which illustrate some of the basic natural principles of 3-D photography and the problems that arise from them, are reprinted through courtesy of *The Daily Film Renter*, London, England. They are based on designs prepared for lecture demonstration by Floyd A. Ramsdell, well-known American authority on stereoscopy.

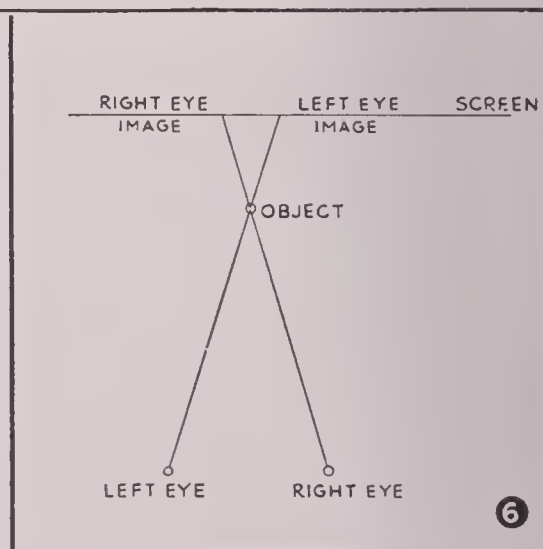
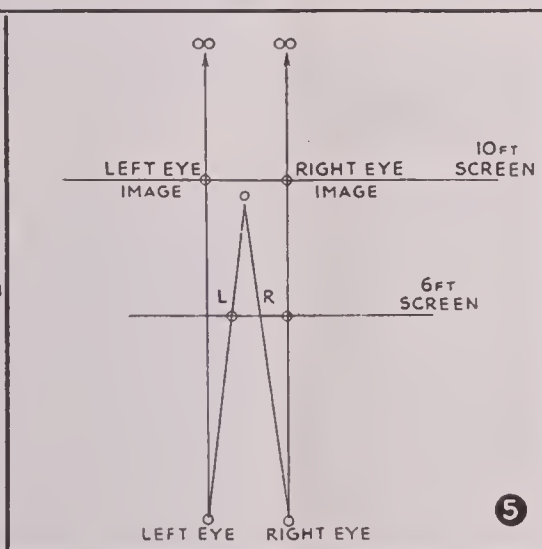
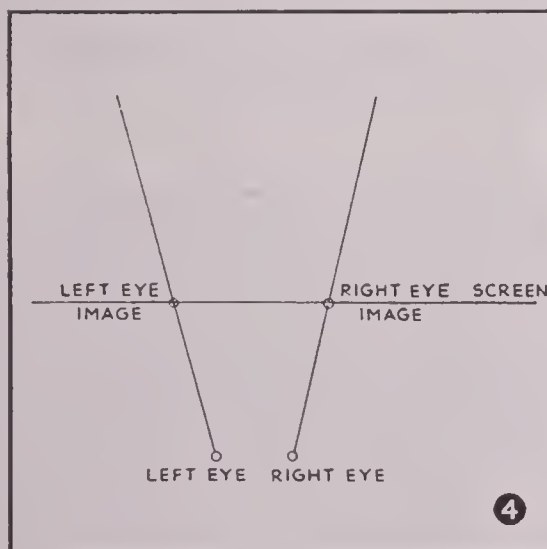
While screen width and height are fixed by the size of the screen, depth—that is, the distance an object appears to be behind or in front of the screen—will vary for each person in the audience. Depth can be controlled at will by the photographer, Mr. Ramsdell says, and, because it can be so seriously distorted, requires the most careful study.



In the simplest case, left and right eye images exactly superimpose on the screen when viewed without polarizing spectacles. When observing 3-D through pola-viewers, each eye is still led to the same spot on the screen. Hence, that object will seem to be at the screen at identically the same place for everyone in the audience—for John, sitting in the 6th row, and for Mary, sitting in the 12th row.

Left and right eye images, when viewed without pola-viewers, appear separated on the screen. When viewing through polarizers each eye is directed to its particular image. The point at which a line passing through right eye and right eye image fixes the distance the object seems to be behind the screen. Here A is object as seen by John; B for Mary.

Here, the left eye image is separated from the right eye image by exactly the same distance as that between pupils of two human eyes. Because pola-viewers channel each eye to its respective image, these lines of sight are parallel. Since parallel lines meet at infinity, the object will seem to be at infinity for everyone in the audience. The object will have a different location laterally for Mary than it does for John.



What makes viewers of 3-D movies sometimes complain of eyestrain? If left and right eye images are separated by more than the normal interocular distances ($2\frac{1}{2}$ ") the pola-viewers will try to turn the eyes outwards—a feat impossible for normal eyes. Left and right eye screen images of the object farthest from the camera must never be more than normal eye separation when projected on the screen.

Importance of correct screen size for 3-D is illustrated here. In this case, the pair of projected images on the 6-ft. screen represent an object that is a reasonable distance behind the screen. When the same image is projected on a 10-ft. screen, there will be greater separation. Thus we see that separation of lens axes in the camera is definitely related to size of screen on which resulting dual images are projected.

One other problem is of interest when considering the location of the images on a screen: in this final case, the right eye image and left eye image are reversed at screen position; but, again, the polarizing viewers channel each line of sight to its correct image. Since, in this instance, these lines of sight intersect in front of the screen, the object will appear to be in front of the screen.



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NOT ALL THE ACTIVITY in three-dimensional motion pictures is in Hollywood despite the fact it remained for the U. S. film capital to give 3-D movies their first real impetus. Interest, if not actual production, in 3-D films is world-wide and some of the most interesting 3-D cameras have originated in Europe.

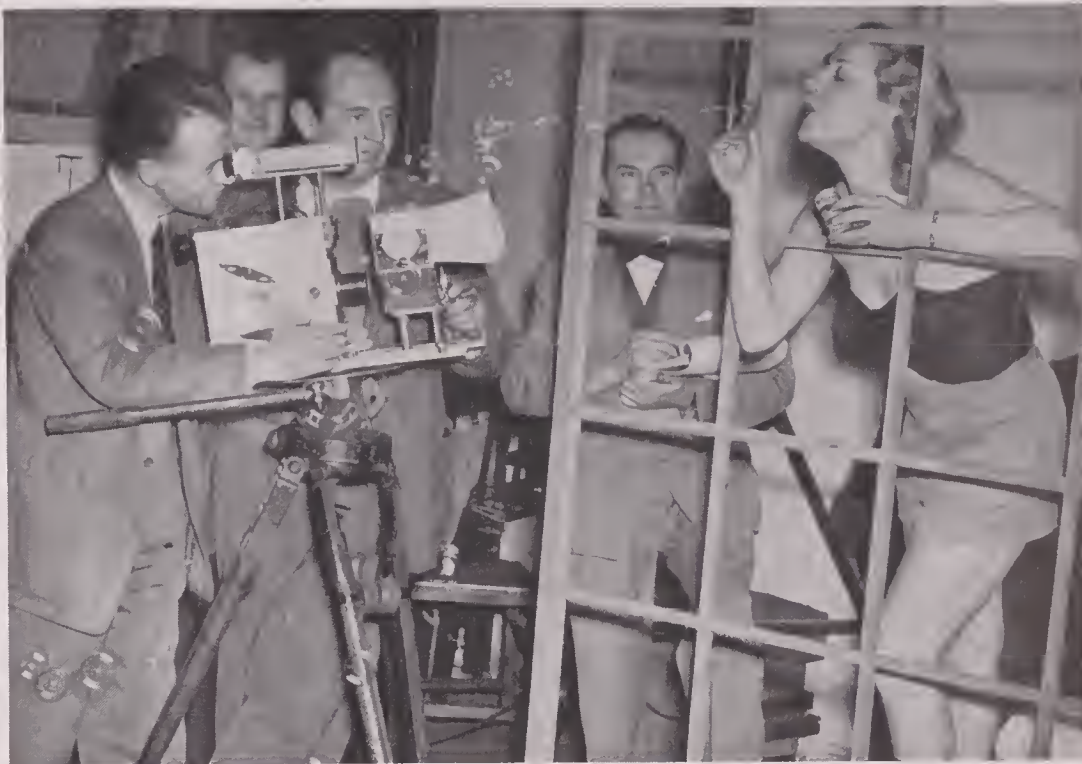
One such camera, noted for its unique departure from the usual dual-camera arrangement is that designed by Leslie Dudley of London, and which is described in the March 19th issue of *Kinematograph Weekly*, British industry trade paper.

The Dudley camera and 3-D filming system is being sponsored in 35mm production. He plans to produce a monthly magazine feature film in 3-D plus a feature in color-3-D of the Coronation.

The Dudley 3-D system involves but one camera and one strip of film. A British Newman-Sinclair 35mm camera is fitted with a simple prismatic attachment which mounts in front of the camera lens, and receives right and left eye views, rotates them through 90 degrees, and registers them half-size on the film within the space of a single normal frame. All the complications of linking together two cameras are avoided.

Corrections for parallax are embodied in the attachment, and, it is claimed that for optical reasons, it is possible for the camera to be much closer to the player or actor than with other 3-D filming systems. The negative is processed and printed like any 2-D or "flat" film.

To screen the single-strip 3-D films made with this camera, a special stereo-attachment is fitted to the theatre projector. The attachment, through a system of prisms, rotates the two images on



LESLIE DUDLEY'S single-camera 3-D filming system utilizes a British Newman-Sinclair 35mm camera fitted with prismatic attachment that receives right and left eye views, rotates them 90 degrees, and registers them half-size on a single frame of film. The negative is processed and printed like any flat film.—Phata courtesy *Kinematograph Weekly*.

One Camera, One Film For 3-D

Single camera fitted with a simple prismatic attachment is said to do everything that a dual-camera, twin-film 3-D system will do.

the film, enlarges them, polarizes them, and superimposes them upon a normal size screen. The attachment is mounted in such a way that it can be tilted back whenever it is desired to screen flat films. It is scheduled to be available for general distribution within the next thirty days, and will be supplied to theatres on a rental basis.

To the film exhibitor, the prime advantage of the system is that a feature can be shown with normal changeovers, and without the interval necessary with two-film 3-D systems for rethreading. All problems of interlocking the projectors are eliminated, the only adjustment necessary being the optical system previously described. The screen required, of course, is the customary metallic-surfaced screen for polarized light, and polaroid spectacles must be worn by viewers, as with other dual-image 3-D processes.

"The idea is so simple," says Mr. Dudley, "that we hope it will standardize three-dimensional systems of the type requiring pola-spectacles for

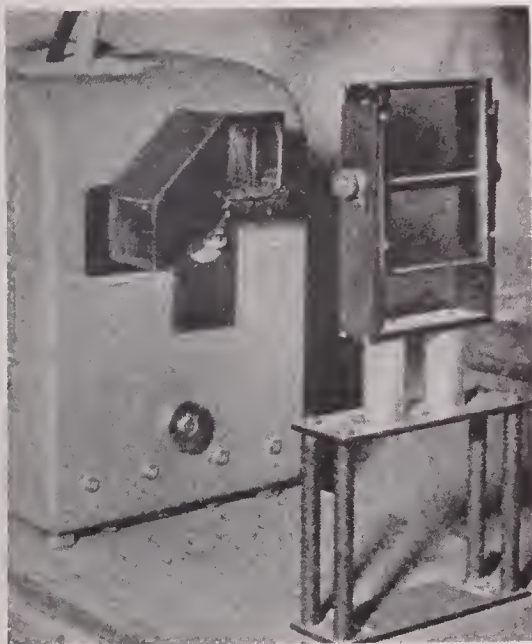
the audience. It will do everything the two-film 3-D systems can do."

The Dudley system lacks one advantage inherent in the double-film systems, where the light coming from two arc lamps serves to offset the losses due to double polarizers. However, it is expected that use of more efficient screens will compensate for such losses.

Dudley points out that while it is undoubtedly desirable that all theatres should be equipped to handle prints of the same type—whether of the single-film—or double-film system—he agrees that there is no reason why films produced on two negatives should not be optically printed to a single film. The undoubted advantages to the exhibitor of a single-film system make this method of producing 3-D films desirable, if not ultimately imperative, believe's *Kinematograph Weekly's* reporter.

Meantime, the search goes on apace by inventors the world over for a practical 3-D method that will eliminate

(Continued on page 286)



DUDLEY'S prismatic attachment mounted on a Bell & Howell 16mm projector. System of prisms rotates the dual film images, enlarges and polarizes them, and superimposes them upon the screen.

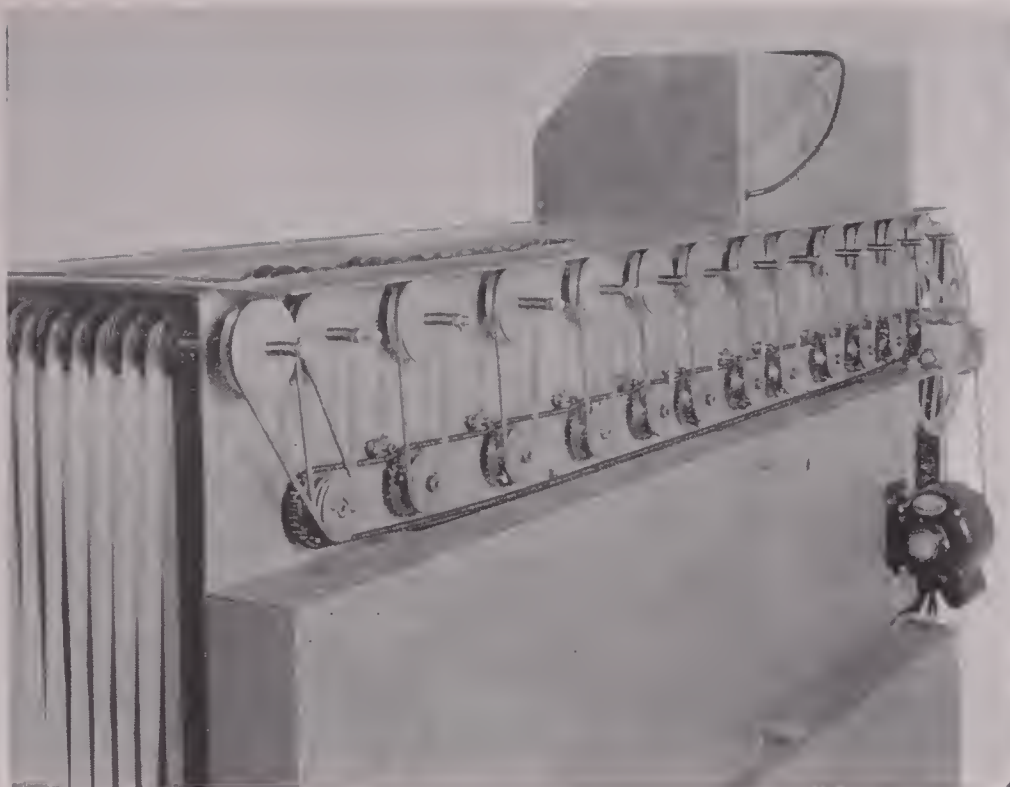


FIG. 1—Bridgamatic drive compartment with cover removed, showing individually driven phenolic, yieldable clutch pulleys. Unit is reasonably tamper-proof and requires no special skills to operate.

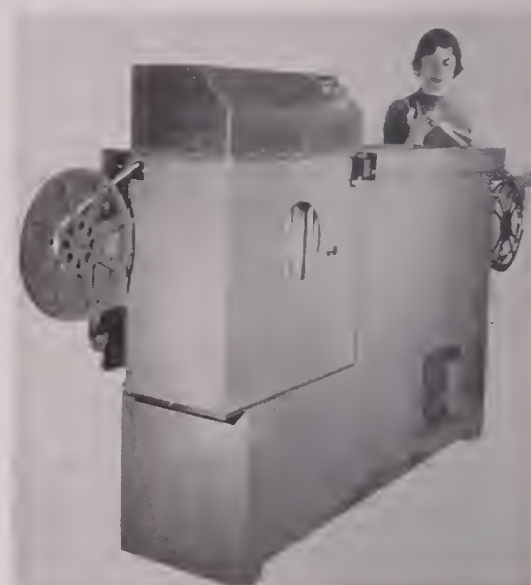


FIG. 2—Operator inspecting film before making quick splice which can be done while machine is running.

The Bridgamatic Developing Machine

Ideal for television stations and small laboratories is this reasonably priced, self-contained, automatic add-a-unit film processor, which embodies standard commercial design plus many unique features.

By JOSEPH A. TANNEY and EDWARD B. KRAUSE
S.O.S. Cinema Supply Corp., New York

THE GOAL OF SMALL film production units has long been quick processing. It has been attained by some, like the big-city television stations which telecast "spot" newsreels of the day's events the same night. Many racetracks, too, project an entire event within a few minutes after the finish. But the equipment cost has been almost prohibitive for educational institutions, small producers and commercial film studios catering to the lesser television stations.

The Bridgamatic was designed to fill this need for a compact, self-contained automatic processor. After several years of experiments, a practical,

REPRINTED by permission from the March, 1953, Journal of the SMPTE. Original paper was presented on October 8, 1952, at the SMPTE convention at Washington, D.C., by the authors.

simple drive mechanism was designed which would be reasonably tamper-proof and require no special skills to operate. It was planned that with intelligent handling it should keep the film moving for hours without much operator attention, other than changing reels. Exposed film was to be fed into one end so it would emerge at the other end, developed, fixed, washed, dried and reeled ready for projection or printing. This seemed at first a comparatively easy problem; but because film stretches when it is wet and again contracts when it dries there is a constant and continuous variation in its linearity. It was found that a fixed speed drive would not take care of this without manual readjustment while the machine is running. So, the overdrive system was adopted.

This equipment operates through the

medium of two separate drive systems combined to produce an overdrive on the upper banks of rollers (Fig. 1), thus eliminating any troublesome drive components immersed in the solutions. The basic drive consists of a chain which is driven through a conventional gearbox and a drive motor. This in turn drives a series of chain sprockets synchronously, one sprocket for each bank of rollers in the machine. Permanently affixed to each chain sprocket is a laminated bakelite phenolic pulley of the same diameter. This serves as a connecting medium to the secondary drive system, thus providing the means of operating the upper banks of laminated phenolic bakelite pulleys. A belt connects the upper and lower pulleys, thus making the lower synchronous pulley the actuating medium and the upper pulley the driven medium.

Attached to each upper sheave is a yieldable friction clutch. These upper driven pulleys decrease in diameter from the feed-in end of the machine through the drybox to the take-up. This tapering diameter sheave system increases the peripheral speed of, and induces an overdrive in, the upper banks of rollers, each bank rotating at a greater rate than the one behind it, and so on throughout the entire machine. The yieldable friction clutches hold the overdrive in check, and will not allow any unnecessary strain or pull on the film strands at any time. Each clutch is adjustable as to tension by a tempered compression spring held by a locking collar. Significantly enough, these springs in themselves contribute little to produce the overdrive in the Bridgomatic machine.

This overdrive is mathematically calculated when the pulleys are made—the amount of overdrive is positive for the life of the machine and has no dependency at all on critical spring pressures or other fine adjustments. Through this means of transmission it is also possible to vary the amount of overdrive at any one section of the machine. For instance, in the extremely long machines used for color processing, it is possible to eliminate completely the overdrive tendency in the drybox where the film is contracting while it is drying. In the usual types of Bridgomatic machines for small laboratory use, the overdrive is carried through from the film entry point right to the take-up reel. Even the film in the drybox has an overdrive working there which is also controlled by the yieldable clutches. The springs on the clutches are merely sufficient to place the upper banks of rollers in opera-

tion and the overdrive automatically takes over from there. This action takes place continuously in all sections of the machine, even though the movement is normally imperceptible.

Each individual bank or group of rollers is adjustable to tension by releasing the locking collar setscrew using an Allen wrench and compressing or releasing the spring as necessary. An overall adjustment can be made quite easily and simply. The film is hand held at the feed-in end and the machine is started. Each bank of rollers will in turn automatically stop rotating. The film is then released and the rollers are observed as they resume driving. Each bank should start successively without hesitation the moment the tension is released. The first should start, then the second, and so on, until the take-up reel is turning and the entire machine is in operation. If there is any lagging, the cycle is repeated to locate the offending bank, then the lock collar is loosened and more spring tension applied as necessary to that particular section.

When this drive system was being designed one of the requirements which seemed important was to keep the drive mechanism completely clear of any chemical contact with solutions. Another important item was to keep the machine as wide open as possible and free of complicated covers and inaccessible places. This was solved by enclosing the entire mechanism in a separate housing of its own (Fig. 1) where it is completely out of sight and away from solutions, tanks, etc. The entire film roller assembly can be removed from the machine in a half hour with nothing more than an Allen wrench. This provides for simple peri-

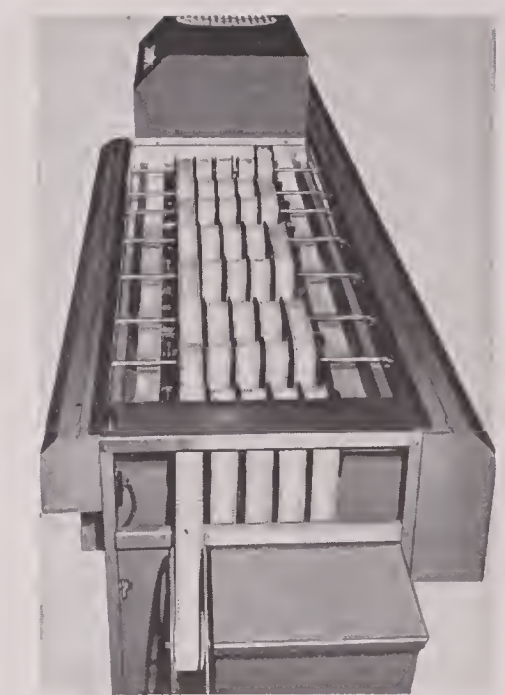


FIG. 3—Top view of Bridgomatic 16/35mm machine showing straight-line design. All major ports are readily accessible.

odic cleaning of the tanks and rollers if necessary without a total breakdown of the machine with its attendant lay-up period.

Tests made at the factory with this type of drive showed that it was possible to run single 8mm film through the machine without any film breakage. A splice using only one staple did not let go throughout the entire process. By alleviating the stresses and strains, this machine's drive exerts so little driving torque that it produces a very clean film product and reduces abrasion marks on the base side of the film to an absolute minimum. Test

(Continued on page 283)

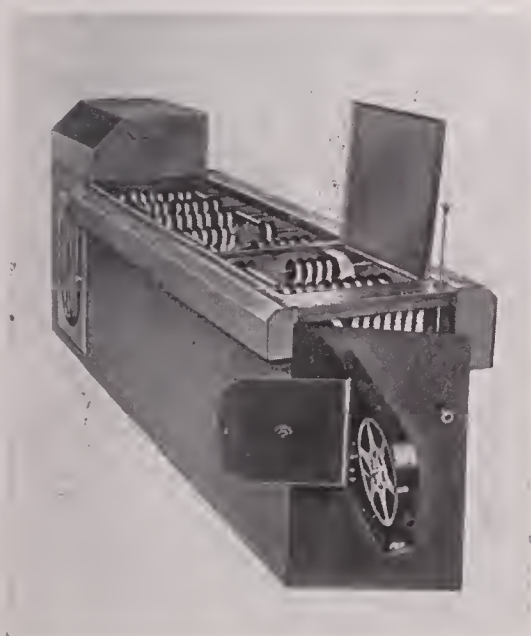


FIG. 4—Bridgomatic TV Reversol model showing daylight mogozine (back to open door), feed-in elevator, and light-tight cover.

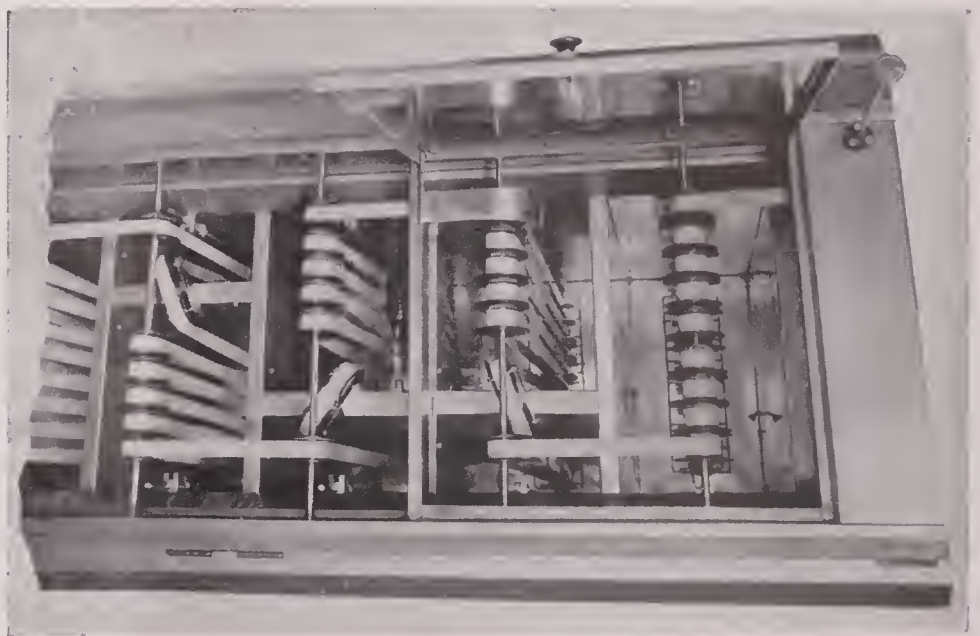


FIG. 5—Top view, showing interior of stainless steel tanks, nylon bearings stainless steel shafts and other parts of inert materials. One master switch controls operation of entire assembly, including heater and dry-box.



◀ **DON MALKAMES, ASC**, (right), who shoots the Ralph Bellamy "Man Against Crime" CBS-TV film series in New York, was first cinematographer to use the new Type 927 DuPont film. Malkames, pictured here with Bellamy (center) and DuPont's Al Cushman, examines test roll of new stock which is on thinner base and reportedly is $2\frac{1}{2}$ times faster than DuPont Type 2.



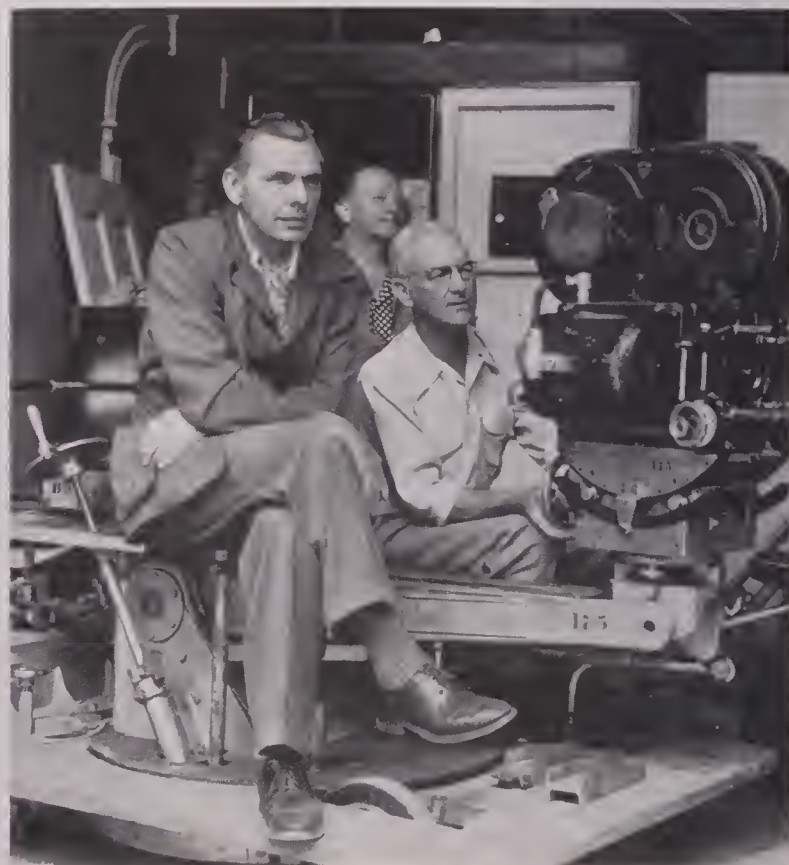
WALTER STRENGE, ASC, (above, right) who directs photography of the "My Little Margie" TV film series for Roland Reed Productions, is seen here chatting between takes with Margie's screen father, Charlie Farrell (left), and actor Clarence Kolh. Strenge is one of TV film industry's veteran cinematographers.

Who's Who In TV Film Photography...



JIM VAN TREES, ACS, who shoots the "Groucho Marx Show" (NBC-TV), gets in the act, too, during pre-shooting warmups with audience. It's all a gag when Groucho asks Jim to tell audience why Groucho must don coat of special color when show starts, then persists in interrupting as he tries to explain. Finally Jim pulls card from pocket and reads prepared technical explanation, which confounds even Groucho.

▶ **JACK GREENHALGH, ASC**, (below, left) is another of the growing number of veteran studio cameramen to cast their lot with TV film producers. Greenhalgh directs the photography of Family Films' "This Is Your Life" series of half-hour religious TV films. With him are operator Ernest Smith and assistant Bennie Coleman.



A New Camera Dolly For Films And Television

New Multidolly offers greater flexibility for the cameraman.

By KARL FREUND, A.S.C.

A NEW ITEM OF CAMERA equipment, the Multidolly, is a recent Hollywood development which offers to directors of photography a new flexibility of camera motion. Shown to the public for the first time last month at the National Convention of Radio and Television Broadcasters in Los Angeles, this new design has been planned for use by both motion picture directors of photography and television program directors.

Weighing slightly more than 500 pounds, and capable of carrying one or two men with the camera equipment, the Multidolly was designed to provide the maximum in convenience for everyone concerned with its use. From the director of photography who needs frequently to check the camera lineup, to the grip concerned with moving the dolly relative to the camera subject, the entire crew will find this equipment has been planned for efficiency.

From the early days of television the lack of spacious stages on which to work has created a new concept of camera motion for that medium. The first requirement was that the dramatic quality of the programs be held to a high level photographically, and that this be done under the combined handicap of small stage facilities and small camera supporting equipment.

In Hollywood and other film making centers of the world the limitless material appetite of television has had its ef-



FIG. 1—Low-slung chassis is just one of many features of the Multidolly, newest baby mobile mount for film and TV cameras. Other features are differential circular steering and hydraulic boom control.

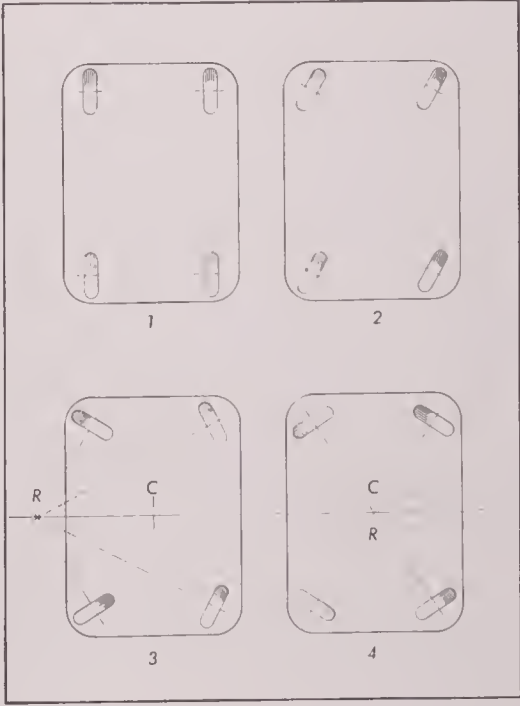
fect, and the evidence of this is the increasing number of short-duration, low budget films being produced by both the major studios and small independent organizations. The mammoth camera cranes which have been a part of the Hollywood scene for so long are immediately ruled out by the term "low budget" because the expense involved in using such equipment increases in approximate proportion to its weight and bulk. So in such film production the transition to the use of small, extremely maneuverable camera supporting equipment has kept pace with the origin and development of television camera techniques using similar equipment.

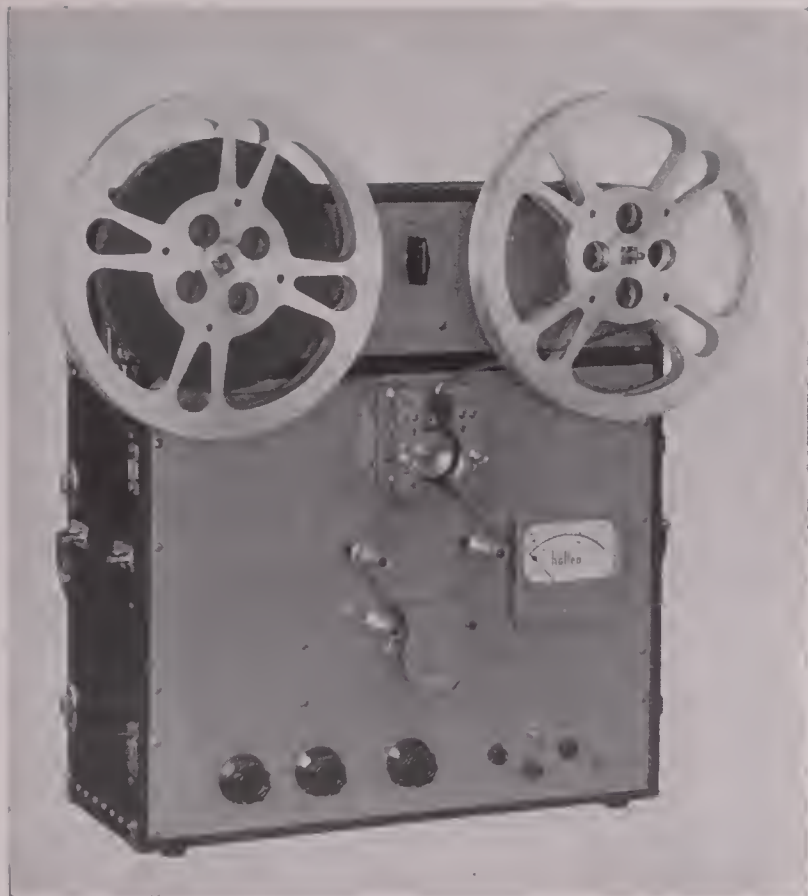
The parallel that is evident in the camera technique of
(Continued on page 296)



FIG 2—Basic hydraulic circuit of Multidolly: (1) hand pump; (2) fluid reservoir; (3) pressure accumulator; (4) pressure gauge; (5) valve; and (6) cylinder. Boom is lowered by releasing hydraulic pressure from cylinder.

FIG. 3—Diagrams at right show wheel positions of Multidolly for the two optional steering methods afforded: Neutral position is shown at (1); position for parallel steering is shown at (2); No. 3 shows relative position of wheels for circular travel, while pivoting action requires wheels to be set as shown at (4).





THE HALLEN model 25-B magnetic recorder is a rugged single-case unit weighing 73 pounds. Easily portable, it breaks down simply and quickly into three separate pieces for operation.

IN 1946, ONE OF THE most significant advances in the art of sound recording was introduced in this country, that of inducing a magnetic field on either a wire or metallically impregnated cellulose tape. True, experiments along this line had been made in the United States as early as 1930, but all had been discarded as either impractical or unworkable. However, following the electronic advances during the war years, the importation of the basic system from Germany fell into facile hands and upon fertile minds. A new recording medium, and a valuable one, came into being.

The engineers of the Hallen Corporation of Burbank, California, recognized this new method of recording as being of particular value to the motion picture industry, and research and development was begun on a "lip-sync" magnetic film recorder using standard film stock coated with a ferrous oxide. From this project evolved the Hallen, America's first commercial magnetic film recorder.

In the seven years since the appearance of the first Hallen, many refinements and modifications have come forth from Hallen developmental engineers. And as industry acceptance of magnetic film recording grew, certain basic precepts and requirements became obvious, particularly from the standpoint of the small producer. There was strong need for more than just a high-fidelity, medium priced recorder; rather there was need for a simple-to-operate recording system, complete from microphone inputs to playback monitor. Such a piece of equipment is today's Hallen Model 25-B.

Designed specifically for the motion picture producer whose budget is limited but who will not sacrifice fidelity of reproduction, this recording system has features usually found only in the highest priced equipment. It is licensed under the patents of the American Telephone and Telegraph Company, Western Electric Company, Inc., and those of Hallen Corporation. It is lightweight and rugged, consistent with good engineering practice. All specifications are well

The Hallen Magnetic Film Recorder

Complete "lip-sync" recording system in one package.

By HAL POWELL

Hallen Corporation, Burbank, Calif.

within the standards adopted by the Motion Picture Research Council Standards Committee.

The Model 25-B packages into a rugged single case weighing seventy-three pounds. Easily portable, it breaks down simply and quickly into three separate pieces for operation. The back of the case is made up of two sections, one housing a 6" x 9" oval speaker and a power supply, the other, the take-up and rewind motors. The latter plugs into and clamps firmly onto the top of the remaining section which contains the mixing and recording controls, as well as the film transport mechanism. In operation, the speaker-power supply unit may be located at a distance from the recorder itself.

Three separate motors are provided, thus preventing any of the take-up irregularities being transmitted back to the drive motor. It also eliminates the engaging and disengaging of any gears or belts. The only gears in the unit are on the drive motor, and these are quiet-running nylon gears with hand-lapped worm for smooth operation. All motor leads terminate conveniently and centrally to allow remote switching if desired, while switching on the unit itself has been simplified to a single three-position control.

The system is so designed that it may even be played in "sync" in reverse if desired, to spot a take or make a fast recue. Reverse transfer is sometimes desirable to reduce the "clipped" effect of the noise reduction attack in optical transfers, and in the playback of certain non-standard tracks.

There are also three separate inputs to the Hallen recording system, and they may be used simultaneously. Two mi-

(Continued on page 287)



REAR VIEW of the Hallen 25-B. Back of the case is in two sections. One houses a 6" x 9" oval speaker and power supply; the other, the takeup and rewind motors. Latter mounts on top of main section.

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A PROFESSIONAL instructor can greatly reduce the time necessary to learn camera angles and lighting techniques. Here a professional lighting result is achieved with reflector-floods, properly placed.

Student Movie Makers

How a serious student class achieved best results working in a small group in which every member was given an active part in each production.

By ANN MEUER

the average cinematography class. It wasn't only the size of it, but also the fact that we had no part in selecting the problem to be worked on—no sense of excitement or participation in the work. We decided to form our own movie making class.

Our first job was to be very sure about our own aims. We wanted a manageable working group in which each person could play an integral part. We wanted in our group only those who had something to say and felt they had to say it on film—people who could work with and help each other. Our first objective, then, was a small eager group. Now, we think we have the ideal set-up—our own movie class of ten students who have pooled their cameras, lights, and other equipment.

In setting up our class, we talked to many people in the professional movie field and asked about some person who might be willing to give us the instruction we wanted. Our most important need was to get a teacher who would not tell us how to do it his way, but would help us to express our own ideas. We selected Peter Glushanok, a professional cameraman who has made many fine films. At first, we were afraid he might be too busy to give us enough time; instead, he usually gives us more time than agreed upon, because of his belief in, and enthusiasm for, the objectives of the group.

(Continued on page 292)

WERE YOU EVER in a class of students trying to make a movie where perhaps ten work seriously on the project, while the others stand around not knowing what to do with themselves?

It happened to me—and, when I talked about it, I discovered there were others who felt as dissatisfied as I with



THE STUDENT, in hands of a competent instructor, learns value of resourcefulness—as here in using two bricks to give added support to tripod-mounted camera on location.

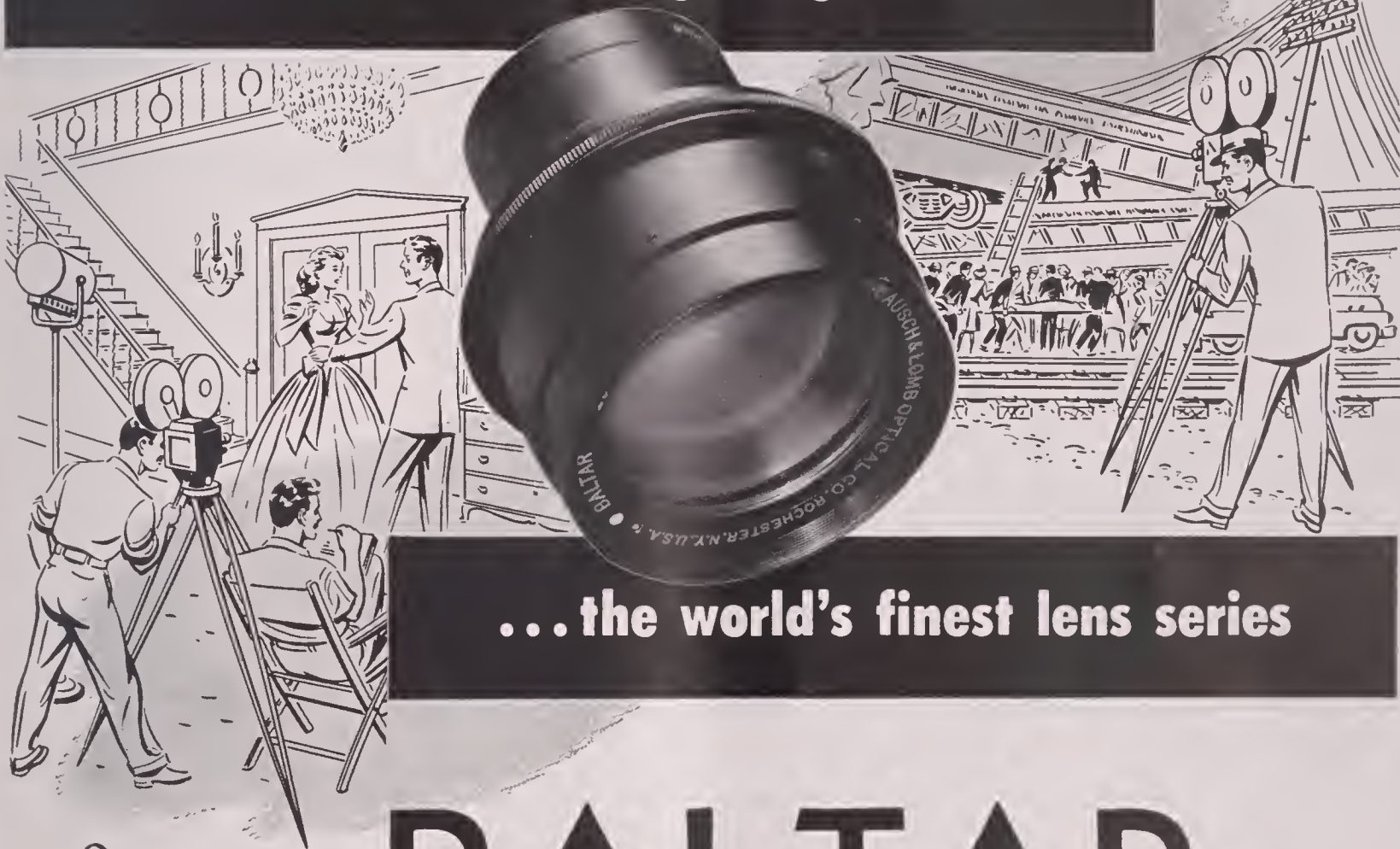


THE MOVIE maker also must be his own gaffer, know how to run cables, make good connections, and at same time not overload circuits so blown fuses will result.



TODAY'S cine photographers prefer reflector photoflood and spot lamps for illuminating interiors, ideal when used with Alligator Clamps for easy mounting on stands, furniture, etc.

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FIG. 1—To prevent thrown objects from damaging the Bolex stereo lens when filming extreme 3-D effects, the author mounted a panel of shotter-proof glass before the lens, as shown above.

IT WAS INEVITABLE that amateur movie makers should want to fall in line with the professionals and make three-dimensional movies, too. With the new Bolex Stereo equipment, owners of Bolex 16mm DeLuxe cameras can turn out stereo movies having all the photographic quality of a Hollywood 3-D production.

With more and more Bolex owners acquiring 3-D attachments, it is estimated that by the end of the year there will be a formidable number of 16mm 3-D films completed by both amateurs and professionals. Many of these are expected to be exhibited at American Cinematographer's first annual 16mm 3-D Film Festival to be held in Hollywood next January.

With so many 16mm filers contemplating making 3-D movies, it is natural that many questions should arise regarding this type of movie making with sub-standard cameras. How does one proceed in shooting a 16mm 3-D movie? What are the problems, if any, that may be encountered?

Actually, there is little difference between shooting ordinary movies and three-dimensional movies. The fundamental difference between the two lies in the projection. In stereo you no longer look at a picture projected onto the flat surface of a screen. The screen disappears and in its place we have an "open window." Animate objects captured on film can be behind the window, or appear to jump or shoot through the window out into the audience, providing visual thrills that only stereo can give. How this is achieved is

How To Shoot 3-D Movies In 16-millimeter

By ERNST WILDI

Bolex Division, Paillard Products, Inc.

simply a matter of choosing the correct distance between subject and camera when shooting the picture.

Now what is the *correct* distance? Imagine that 10 feet in front of the camera (measured from film plane) there is set up an imaginary wall having an open window 26 inches wide and 34 inches high. This opening is equal to the area that will be included in scenes filmed with Bolex Stereo at 10 feet. Imagine, too, that all your scenes are filmed through this open window. Whatever objects are behind the window will, in projection, appear to be behind the plane of the projection screen; all objects that are placed between camera and window will appear to be out in front of the screen.

The simple rule to remember, then, is: Have no object in front of the imaginary wall unless it can physically move through the open window. This rule requires some examples. The wall and window theory is illustrated in Fig. 5. Here we see a girl whom we shall call Kathleen playing with a ball—a good subject for stereo. The camera is set 20 feet in front of her. As the camera is started, Kathleen, throwing the ball in the air or bouncing it, walks toward the camera—16 feet, 14 feet, 12 feet, and finally to the 10-foot mark where is established the imaginary wall. Because of it, Kath-



FIG. 2—The Bolex Stereo taking lens may be used only with the Bolex DeLuxe H-16 camera. Here the stereo mask has been clipped to front of the Octometer finder, which is then attached to the offset bracket for filming 3-D movies.

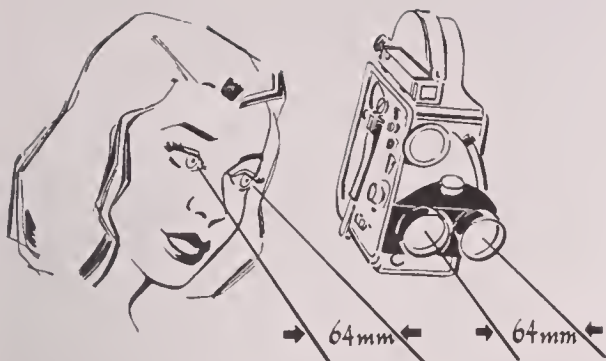


FIG. 3—Bolex stereo lenses have the same interaxial spacing as the interocular measurement of the average pair of human eyes, essential for distortionless 3-D movies.

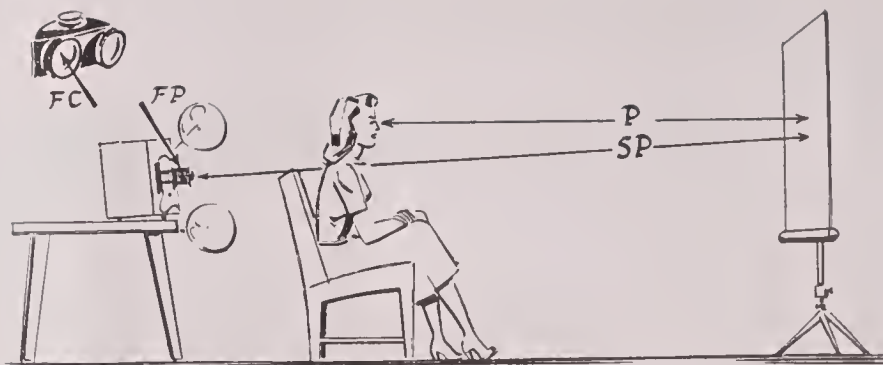


FIG. 4—For ideal viewing of Bolex stereo films, the observer must be seated close to the axis of projection, and at a distance from screen of about five-eighths that of the projector.

leen can walk no closer. At that distance, however, the camera can capture a nice three-quarter portrait of her.

While Kathleen should not *walk* closer to the camera, there are many other things she can do. For example, she can extend through the window her arm holding the colored ball in her hand. In projection, this action would give the extreme depth effect and her arm would appear to extend from the screen and out into the room. Or, even more effectively, she can throw the ball through the window into the audience, who instinctively duck their heads or reach out to catch the ball.

Summarizing: Because of the wall, Kathleen cannot walk closer to the camera than 10 feet, but she can perform at a closer distance anything that can be done through the open window. This rule applies to any subject matter. A tree, for instance, definitely must be behind the wall; however, a single horizontal branch of the tree can appear to extend through the window. Again, a scene of Kathleen on a swing is most successfully shot in a fashion that allows her to swing through the window, with her legs approximately 5 to 6 feet away from the camera in closest position. In making a shot of this kind, care should be taken that the rope of the swing, or Kathleen's legs, do not cut the frame of the window, otherwise the depth effect will not be 100 per cent convincing.

Other good examples of typical 3-D action are: A stream

of water from the gardener's hose appearing to drench the audience; a tennis ball, golf ball, or baseball zooming out of space; multicolored soap bubbles blowing out into space, etc. Almost everyone who has had the chance to see stereo movies will agree that action played through the stereo window is the most spectacular; therefore, the 16mm filmer should try to include dramatic shots of this kind in his stereo movies.

In all the examples described above, where an object either moves quickly through the window, or where the only thing that is desired is the depth effect, there is no close limit in regards to distance. In fact, it is better if the object moves directly into the camera lens . . . for example, a ball thrown directly at the camera; water coming directly from the garden hose, etc.

To film such extreme action, it is advisable to provide a suitable guard in front of the camera lens and the Stereo attachment to protect them from damage that might occur if struck by thrown objects. For this I have designed an attachment for my camera that holds a 5" x 7" panel of safety glass in front of the camera lens. This is pictured in Fig. 1. The gadget has proved entirely satisfactory, having withstood thrown tennis balls, apples, stones, and arrows, as well as having protected my camera and lens from water.

In shooting stereo movies, the object is to create the illu-

(Continued on next page)

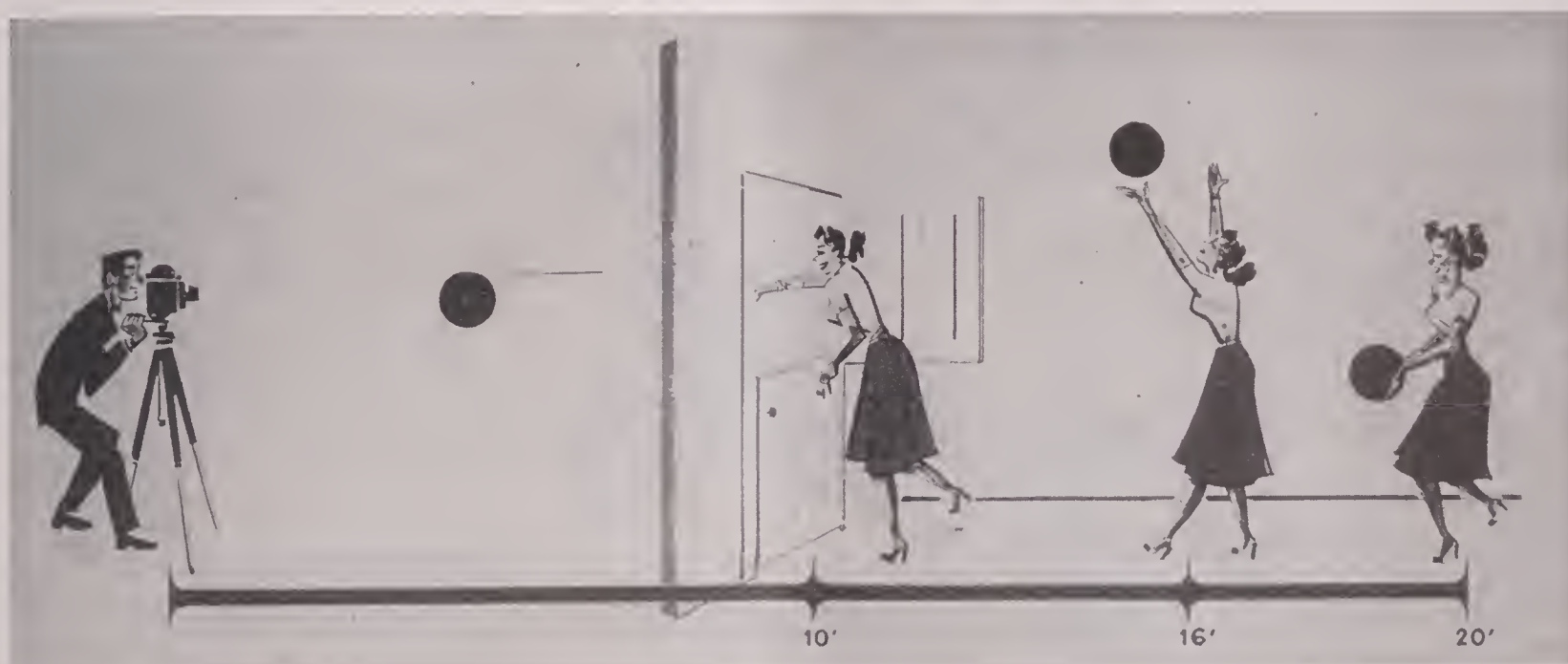


FIG. 5—Illustrated above is the imaginary "wall-window" limits that should be followed in filming Bolex Stereo. The wall, at 10 feet, is the forward limit to which a subject may approach camera. The window represents the actual "stereo window" back of which all nor-

mal action should be kept, except when extreme effects are desired—then objects are hurled, extended or allowed to protrude beyond the 10-foot limit, or through the "stereo window."

—Illustrations courtesy Bolex Reporter.

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CLOSING DATE FOR ENTRIES—DECEMBER 1, 1953

3-D MOVIES IN 16MM

(Continued from page 279)

sion of depth. This is best achieved by setting up the camera so that the scene to be filmed includes a foreground object 10 to 15 feet away from the lens. Such objects as a fence, tree, flower, rocks, etc., are ideal for this. Such foreground objects should be a dominant part of the picture composition, should be well lighted, and should be of a light color. Where a suitable foreground object is not readily available in the scene, substitute some member of the family or a friend. Have them *walk into the scene* at the desired point—never pose them looking directly at the camera, as is ordinarily done for a still shot. And have subjects dress in vivid colors for color film.

In doing pictorial still photography, it is common compositional practice to have a tree trunk and branches *in the shade*, as a foreground silhouette nicely framing a distant view. In stereo, it is much better to have the tree in bright sunlight because dark, shadowy areas do not add to the three-dimensional effect. For the same reason, when making stereo scenes indoors, background walls should be lighted so that they become part of the overall picture, adding additional depth. The correct amount of light to throw on a background wall can best be determined with an exposure meter. The lighted background should give approximately the same meter reading as the main subject. In short, the general rules for lighting interiors which are standard practice for regular movie work can be followed in shooting stereo.

A complicated lighting setup is not as essential in stereo as in regular movie making, because in stereo, depth is created automatically and does not require any artificial help or emphasis, such as tricky side or back lighting.

The procedure described above (keeping subject 10 feet or more ahead of camera lens) brings up the question about shooting closeups in stereo. A regular movie without closeups gives the impression that something important is missing. Not so with stereo. Closeups (at less than 10 feet) are much less important because stereo movies are so real and fascinating. In fact, it is possible to produce an excellent stereo movie having not a single closeup.

Where closeups are necessary, Bolex makes a stereo closeup attachment that gives the correct stereo effect at close distances, and at the same time it also automatically assures sharp focus. Shooting with the Bolex stereo closeup attachment makes it necessary to con-

sider one additional point, that of stereoscopic depth of field—which need not concern us when using the basic stereo unit only.

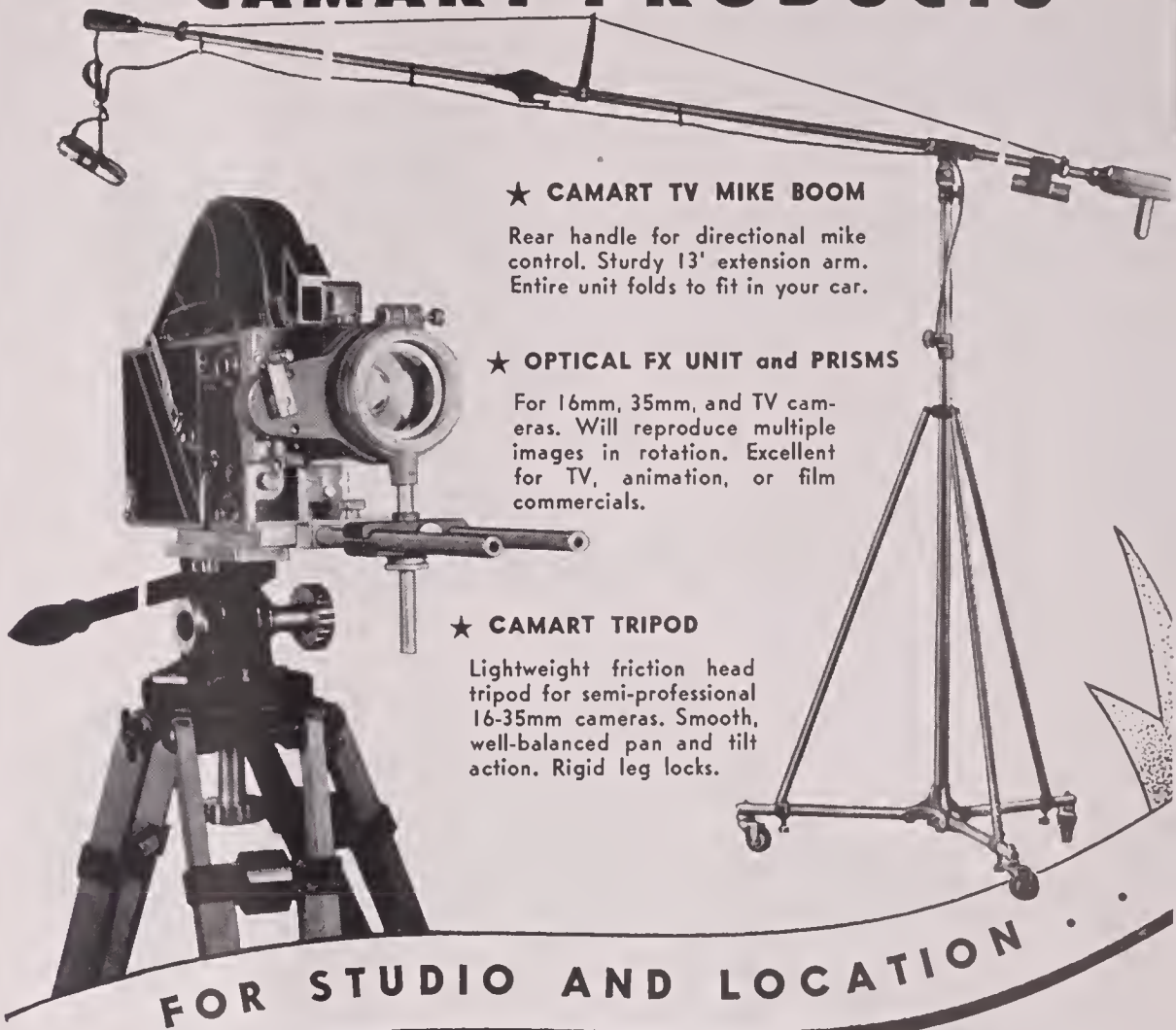
To explain the need for this, let us consider the functioning of normal vision. In regular viewing, we can only see an object either at 10 inches or 10 feet properly, but not both together. The same holds true in stereo shooting. The subjects must be within a certain range of distance called stereoscopic depth of field. Using the Bolex closeup lens No. 1, the stereoscopic depth of field is from 40 inches to 5 feet; therefore, nothing should be farther away. Using closeup lens No. 2, the corresponding distances are 24 inches to 30 inches. Thus, anything in the scene beyond the maximum distance will prove distracting and should therefore be obscured or blocked off from view. This can be done with a suitable backdrop—piece of cloth or cardboard. There is one exception to this rule; that is when the background is plain, and does not contain any pattern, reflection, shadow or different colors (as for example, a plain sky). Then its distance from the camera is of no importance.

The Bolex closeup stereo lenses are most valuable for making stereo titles. These, incidentally, should be short, easily readable, and definitely three-dimensional. The best distance for titles is right in the stereo window, which, according to the figures previously given, would have to be set up at either 40 inches or 24 inches in front of the camera. To give the titles depth, three-dimensional letters such as Mittens should be used. Hand lettered or printed title cards will not make satisfactory 3-D titles.

Guided by the information given here, almost anyone can make thrilling 16mm three-dimensional movies, using Bolex stereo equipment. For those who would like a little more technical data on the principles and function of 16mm stereo movies, we will take just a little more space to explain.

In normal vision, when an object situated at a finite distance is observed, the eyes converge upon it, and any point in the object is seen at unlike angles by the right and left eyes. When the images are projected under proper conditions, each eye sees only the image that was produced from its respective viewpoint, but the angle at which the object appears to be viewed by each eye depends on *certain technical conditions under which the scene was photographed*. Natural relief (3-D effect) is obtained if all portions of the stereo images are effectively seen at angles equal to those at which each eye, respectively, would see the object when the observer is stationed at the stated

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distance from the object. The conditions that must be satisfied are determined by considering the geometry involved.

The mathematical demonstration is simple, but too long for statement here. In summary, the observer of 3-D movies has the illusion of natural relief if two conditions are satisfied:

First—the camera base (distance between the lens axes) must be equal to the interocular distance (distance between centers of the average pair of human eyes); this has been established as being between 63mm and 67mm. Professional studios have established it as 64mm, or approximately 2¼ inches. Bolex stereo lenses have the same interocular distance — approximately 64mm (Fig. 3).

Second—the observer must be seated at a point on the axis of projection and at a distance from the projection screen as illustrated in Fig. 4:

$$D = s_p f_c / f_p$$

where D is the distance of the observer from the screen, s_p is the distance of the projection lens from the screen, f_c is the focal length of the camera lenses, and f_p is the focal length of the projection lenses.

It is evident that the second condition cannot be satisfied strictly for any observer, because he would be in the projection beam. To obtain the minimum possible distortion, therefore, the observer should be as close as possible to the projection axis. If a picture is being exhibited to a group, evidently some must be closer or farther from the optimum distance from the screen; to an observer nearer the screen, the picture appears flattened, and to an observer farther from the screen, the depth of objects is exaggerated. The focal lengths of the camera lenses and the projector lenses should be so chosen by the designers of stereo equipment that the greatest possible number of observers can be placed near the optimum position; this position should not be too close to the screen.

All this has been explained in considerable detail by Eugene Millet, of the Paillard organization, which manufactures Bolex equipment, in his article which appeared in Vol. 3, No. 1 of the *Bolex Reporter*.

Sixteen millimeter stereo movies are still too new to have developed the techniques that undoubtedly must evolve. Once again the amateur is first in a new field. He can pack the next few years with the thrills of seeking new worlds to conquer with his Bolex stereo movies.

Revere Camera Company has acquired Wollensak Optical Company of Rochester, N. Y., according to Ted Briskin, president of Revere.

THE BRIDGAMATIC

(Continued from page 271)

strips (or any particular section of the work going through) may easily be removed at any time, in any stage of processing. This is done by simply grasping both ends of the film to be removed, making a quick cut and stapling the loose ends (Fig. 2).

One master switch controls the entire assembly. Thus one cannot run the machine without the heater and blower in the drybox or the refrigeration system also being in operation. This prevents film from coming out of the machine wet.

Heliarc-welded 18-8 stainless-steel insert tanks are regularly supplied together with stainless-steel film guides or grids and simplified lifts at the bottom of each tank. This keeps the film on the lower banks of rollers when lifted for threading or cleaning the phenolic bearings. All parts in contact with solutions are of stainless steel or other inert materials (Fig. 5).

This equipment requires a minimum of plumbing. In the absence of permanent connections, a garden hose fits the two pipe fittings protruding from the wash tank. The lower pipe connects to the darkroom water supply and the upper pipe to the drain or sewer. This gives a circulating water supply in the wash tank. If a rapid water change is desired, a portable drain pump is useful in several ways. It will pump all solutions into and out of the tanks and act as a draw-off pump on the upper wash drain. A smaller pump, especially for overflow draw-off, is also available as optional equipment.

There are three speed-change pulleys mounted on the drive at the end of the standard machine: small for negative processing, intermediate for sound-track processing and large for positive film processing. A recently announced optional feature is a 10 to 1 ratio variable speed control transmission which permits an unlimited range of developing times from 2 min. to 20 min. This entirely enclosed assembly is integral with the main drive motor, and replaces the step pulleys with their three fixed speeds. A variety of formulas can, of course, be used and the raw stock suppliers can provide suitable developing and fixing mixtures. Additional formulas can also be found in the PhotoLab Index.* The average developing times are 6 to 7 min for negative, 5 min for sound track and 2 to 2¾ min for positive film. Raising solution tempera-

*Photo Lab Index, Morgan and Lester, Publishers, 101 Park Ave., New York 17.

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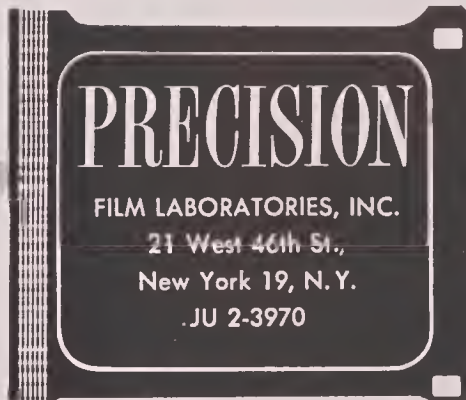
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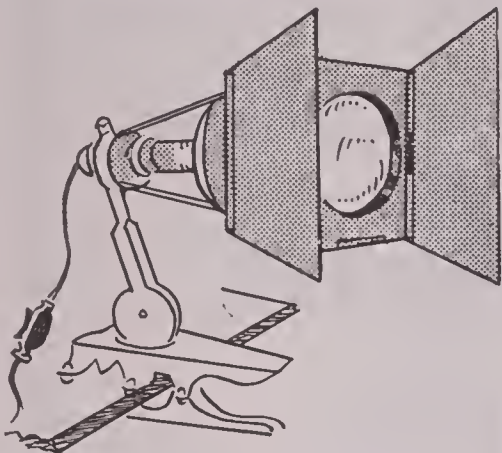
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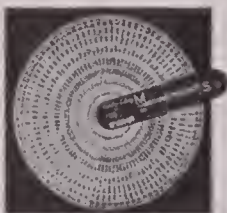
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tures to an average of 90 F decreases the developing-time cycle, and increases the machine's output considerably. An immersion heater for the water jacket with thermostatic control and an extra Calrod strip heater in the drybox can be installed as original equipment, or added later.

A special Bridgamatic high-speed Reversal 16mm machine to process at 100 fpm is also available. It is designed for ultra linear operation with but 100 ft of leader in the machine and it allows 200 ft of picture to be completely processed in 3 min. It operates at 125 F using a pressurized spray and the latest principles embodying rapid drum-type drying. The machine can be designed to exit the film head or tail first, whichever is desired. This unit is entirely automatic, including thermostats, pumps, filters and by-pass controls.

The machine will operate with only one to two gallons of developer and producing excellent results, effecting a considerable saving in chemicals on small jobs. Normally for larger runs, quantities of 2½ to 5 gals. are used. There is a replenishment formula furnished with most developers and over long periods this should be added as instructed. Ordinary hypo formulas with hardener added are used in the third or fixing tank. Air squeegees are provided for blowing the water from the film before it enters the drying cabinet. It is necessary, of course, to have a compressor of proper capacity operating the squeegees. This must be the type that puts out oil-free air, although a filter is recommended as well.

The basic processing machine is of a negative-positive design with four tanks: developer, rinse, fix and wash. Microfilm models have an added wash tank with spraybars. A length of from 200 to 400 ft of leader is required, and tank capacity varies from 2½ to 15 gal, depending on the model, whether 16mm, 16/35mm combination or 16mm reversal.

The most popular model at present is known as the Bridgamatic TV Reversal Special, a nine-tank machine measuring 8 ft long, 2 ft wide and 4 ft high, weighing 650 lb. It features a daylight loading magazine, feed-in elevator with rising indicator and buzzer alarm, take-up elevator, re-exposure lamp and two heaters in the drybox (Fig. 4). Aeration or bubble agitation with a controllable valve is provided for the bleach tank, with a spray header in the final wash. Speed is rated conservatively at 750 ft/hr. The new High Speed Rapid Reversal pan films recently introduced (such as Du Pont's 931) have increased this speed approximately 50%. The machine is made for operation under

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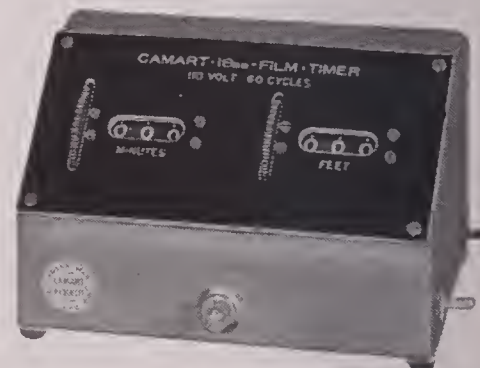
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These machines are now also custom built to a variety of speeds and sizes, from 16mm to 70mm. Two new models are being built for the new Eastman Negative-Positive Color Process or Ansco Negative-Positive Color Process. It may soon no longer be necessary for the film producer to think of color in terms of outside laboratory work and expense. Heretofore color processing machines were huge, costly and cumbersome, and certainly only an investment for the largest commercial laboratories since the cost of chemicals alone was tremendous. This small, reasonably priced color processor is expected to save many times its cost in a short time as the most expedient way of processing and controlling color quality on the spot, without the delays and accelerated production costs which go with expensive retakes.

The basic Bridgomatic machine of any model with its bare essentials may be installed first. Certain attachments are required in *all* installations such as: an air compressor to activate air squeegees and supply aeration; a drain pump for changing solutions and cleaning out the tanks; air and water filters; and a film stapler with rust-resistant staples. Other recommended attachments are: recirculating pumps and filters; draw-off pumps; time-delay feed-in or take-up elevators; refrigeration with temperature controls; daylight loading magazine; sub-base to house accessories and to raise the machine to a more convenient working height; replenishment system; hydraulic speed-control system; and top overflow and bottom drain valves. All may be purchased as original equipment or some units may be added later.

The advantages of this add-a-unit arrangement are considerable, for the machine's usefulness can be expanded as the needs arise. Budgets often arbitrarily limit the amount which can be spent at one time, so breaking up the equipment into smaller components proves a distinct advantage.

Important parts are instantly and easily accessible (Fig. 3). A complete knockdown service job can be done in a few hours right on the premises where the machine is installed. Major replacements can be made quickly, as most assemblies are standard and interchangeable. There are no expensive rigging or erection costs as the machine is shipped ready to plug in and operate. Extreme portability and comparative light weight enhance the utility of the apparatus, while the cost makes it a practical investment for even the smallest organization seeking automatic film processing equipment. **END**

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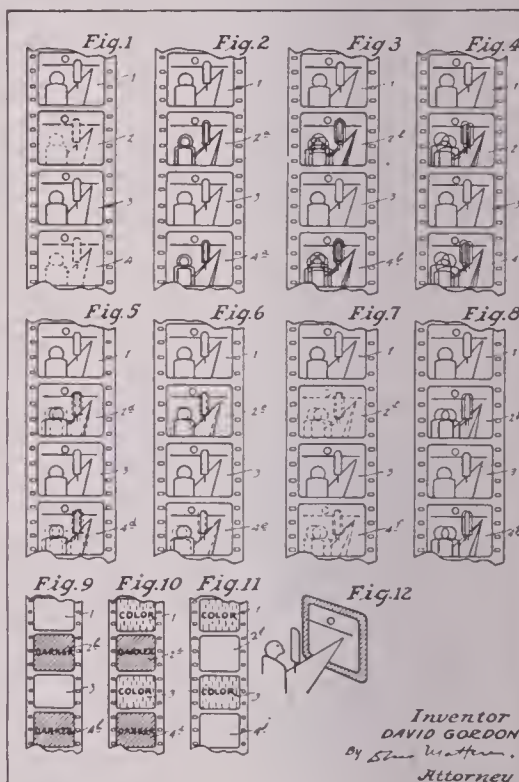
ONE CAMERA, ONE FILM

(Continued from page 269)

need for viewing spectacles. AC's editors are hearing increasingly from inventors and others with ideas — some new, some old—for stereo cameras and filming systems. One of the more persistent is Mr. Frank A. Weber of Hague, Holland, whose article describing his company's VeriVision camera appeared in the May, 1952, issue of *American Cinematographer*. Another is Mr. David Gordon of Bridgeport, Conn., who has patented a number of methods for making three-dimension pictures, both motion and still, that require no polaroid glasses for viewing.

One of Gordon's methods is illustrated on this page. "This system," says Mr. Gordon, "relates to stereoscopic or third-dimensional motion pictures and television photography requiring no visual aids for the eyes."

His system appears to be based on the phenomenon that occurs when, at a distance one views a large photograph or other illustration having foreground



3-D movies without spectacles

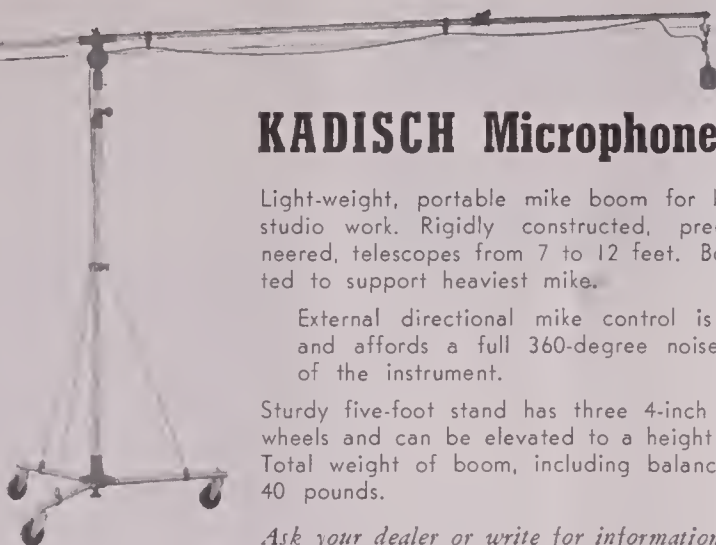
figures sharply defined and which stand out in relief as compared to the out-of-focus or blurred background. "... especially when the foreground images are lighter and stronger in color than the colorless and much darker background images," Gordon states. "Even in binocular or stereo viewing," he says, "we notice the blurring or double background images which makes objects in the foreground stand out in relief."

Gordon's invention proposes to provide similar 3-D effect to a film by the

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Used Equipment Bargains — in this month's Classified Ads Page 298

successive photographing and projection of pairs of pictures, of which each pair consists of one dominant and one subordinate image or frame—the latter containing an image which, when viewed in rapid succession in relation to the other, provides a halo image with respect to the foreground objects of the picture.

Another Connecticut inventor last month announced he had developed a new 3-D method that required no viewing spectacles. He is Albert Pickus, owner of a motion picture theatre in Stratford. The patented system, which bears the tradename Amp-O-Vision, reportedly may be used for all conventional films. More specific details were not being released until the system is put on the market next month.

In Hollywood, Mr. Friend Baker, who contributed the engineering for the Natural Vision 3-D system, which was used in filming the industry's first stereo film, "Bwana Devil," has obtained patents on still another system of 3-D photography and projection. The camera, using a single-lens system with a beam-splitting device, puts both images on a single frame of film on a single negative. In projection, all that is necessary is to change size of the aperture and mount an image-erecting device in front of the lens. The projected picture is rectangular in format with a slight wide-screen aspect ratio. The system, said to be similar to Leslie Dudley's described at the beginning of this article, was demonstrated by Baker before members of the American Society of Cinematographers at their clubhouse in Hollywood last month.

In the meantime, most Hollywood studios are proceeding cautiously with three-dimension films, shooting them via twin-camera, dual-film systems, and only when the story could definitely be enhanced by 3-D presentation.

THE HALLEN RECORDER

(Continued from page 274)

crophone mixing channels with two pre-amplification stages before the mixer are extremely high gain inputs, providing sufficient gain to obtain ample recording level from any microphone, even on long shots. A selection of high-output microphones is not required. Need for a separate mixer or preamplifier is eliminated. In addition to the two microphone channels, a high-level input is provided which may be used for loops, pre-recorded tracks, recorded music, or effects, and it will furnish maximum recording level from an input level of -20 to ± 10 dbm. The volume indicator or meter has been in-

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Reversal 16/35 mm and 70 mm models, black and white or color are available.

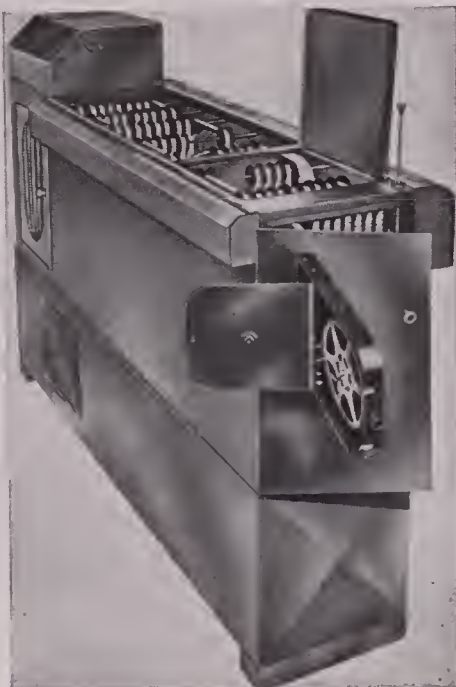
The BRIDGAMATIC Blue Book of users now includes Esso Standard Oil Co., International Business Machines Corp., Modison Film Productions, Wisconsin; The Fox Co. of Louisiana and Alpha Radio, Indo China.

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Monitoring facilities include the speaker, mentioned above, as well as a headphone jack. Monitoring may be switched, while recording, to either the signal being recorded, or the material on the film, immediately after it has been recorded. This "simultaneous playback" feature of the Hallen 25-B is most valuable from a time saving standpoint. By making periodic checks, the mixer operator determines instantly the quality of his "take."

The record and playback amplifier system is designed around only two tube types, which are readily available at any radio store or parts house. The electronic section is so arranged that it may be powered by batteries simply by plugging in the special cable furnished for this purpose. This permits the use of battery for filament supply, and vibrator pack or dynamotor for plate supply. The whole system draws less than 200 watts, so a small portable field supply may be used for power. The units are furnished with combination motor drive system, "sync," and appropriate type of interlock.

As a safeguard against any mechanical flutter or variation in film speed, the Hallen 25-B incorporates the Academy Award winning "C. C. Davis Flutter Suppressor" in conjunction with a tight-loop system. The record and playback heads are placed inside of, and tangent to, the flywheel-loaded sound drum. The heads are at the exact point of greatest film stability, the same point at which the film contacts the flywheel. No gates or pads are used. Flutter on the Hallen has been reduced to the vanishing point, and will remain within Academy standards even under adverse field conditions.

Contributing almost equally with the Davis filter to the stability of the Hallen is the patented sprocket employed. For the first time since the beginning of motion pictures, a sprocket has been developed which gives pull over the entire surface of the film stock. So carefully was this designed that its use alone, without the Davis filter, reduced the flutter of the early Hallens.

New and revolutionary tooth form on the sprocket has eliminated "ticking" to such an extent that single-perforated film stock has been run in excess of 500 times with no distortion of the perforations or tearing whatever. It also makes possible a tighter loop used in the film circuit, and the motion comes up to speed much faster. The full surface smooth pull also has the ability to play stock with defective perforation.

Audible operative noise of the Hallen is sufficiently low that on-the-set use without a blimp is common practice.

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CANADA

No provision for film erasing has been incorporated into the 25-B, as tests have shown that bulk erasers, such as now used by most film studios and processors, are up to 6 db more efficient than the erase circuits employed in recorders.

Although the Hallen 25-B represents the finest in recording techniques known today, the system is readily adaptable to changes in standards or the advancement of the Art. Compensation may be easily made should new and better film stocks become available. Convenient screwdriver adjustments are provided for bias, noise balance, recording curve, meter calibration and playback amplifier output level. As the Art progresses, frequency responses will be widened, so the amplifiers are designed to be essentially flat, 20 to 20,000 cps.

Available for 16mm, 17½mm and combination 17½ and 35mm, the Hallen 25-B fills an increasing need in the motion picture industry. The Hallen Corporation has kept pace with the development of stereophonic sound for motion pictures, too, and now offers its Model 325 studio recorder, which brings to the 3-D film producer many of the same Hallen advantages found in the Model 25-B. Developed simultaneously as companion equipment is the Hallen stereophonic playback equipment for theatres.

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16mm Projection For 35mm Theatres

THE DEBRIE ORGANIZATION in France has developed a unique attachment which now makes it possible to exhibit 16mm sound or silent films in a theater interchangeably with its 35mm programs, using the high-intensity illumination and driving mechanism of the regular 35mm projectors, reports the British Kinematograph Weekly. It opens up a new outlet for the exhibition of 16mm films, and is certain to give impetus to the production and screening of local homemade newsreels.

The 16mm attachment is the development of Etablissements André Debrie of Paris, and so far has only reached the prototype stage. It is designed to be mounted in front of a 35mm theatre projector in such a way that it can be demounted quickly for threading of film or whenever the projector is to be used for screening 35mm films.

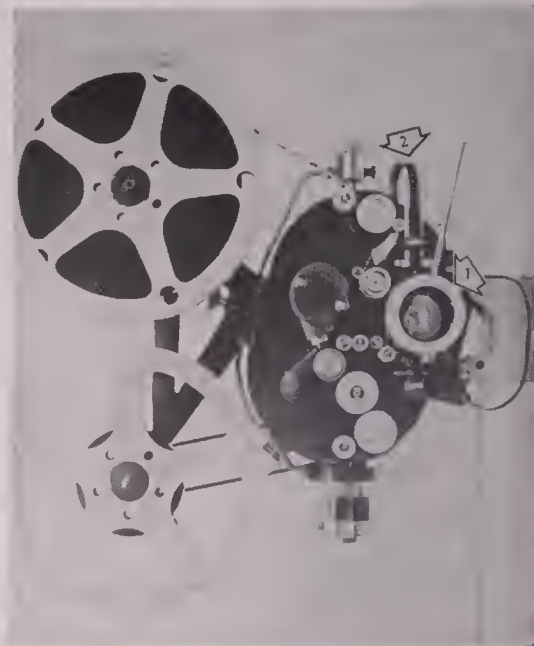
The attachment has to be threaded when demounted from the projector, and for this operation a second mounting is provided in the booth at some convenient place, such as a wall or workbench. This is a quick-detachable bracket which holds the 16mm attachment upright, as when before the projector.

The attachment is essentially a complete 16mm projector, except for lamp and driving motor. As may be seen from the illustration, the device is made more compact by the arrangement of the reels, which are positioned at an angle of 90° of the front-on conventional position of normal 16mm projectors. This permits installation of the attachment on projectors having lens close to the front wall and ports of the projection booth.

The pattern of film travel is unique in that the film passes under the take-off sprocket and forms a twisted loop before it enters the gate; from the gate, it passes over smoothing rollers and around the sound head, thence to the takeup sprocket.

To change from 35mm projection to 16mm, the first step is to remove the 35mm projector lens. In its place is installed a special condenser lens. The 16mm attachment is then placed upon its mounting. It can be driven either from the 35mm projector motor or from a separate motor. A special pre-amplifier, which is part of the unit, is then plugged into the main amplifier of the theatre sound system.

The 16mm attachment is intended for operation at arc currents of up to 60 amps. To avoid scorching the film, a heat-absorbing filter is embodied in the unit; this is cooled by the shutter, the blades of which form a fan.



REELS are mounted at right angles to line of projection. Film forms twisted loop (arrow 2) before entering gate. Projection lens is shown at (1).

The quality of the picture and sound rendered by the attachment is said to be equal that of good 35mm projection. Reportedly, Debrie will introduce a magnetic sound head on future models, making them even more ideal for screening local newsreels, promotional films and even 16mm home movies. It isn't hard to visualize what an attachment of this kind will mean to the future of amateur film competitions, making it possible to screen 16mm films in large auditoriums and theatres and permitting larger audiences to see the many fine films that annually are produced by amateurs and amateur groups.

American Cinematographer has requested the manufacturer to inform it promptly as soon as the attachment is available for sale in the United States, and announcement of its availability will appear in these pages at that time.

STUDIO TECHNIQUE IN 16MM PRODUCTION

(Continued from page 265)

as possible. The action of the principals had to be staged so carefully that the crowd would not suspect there were actors in their midst. The cameras could not be effectively hidden — but they had to be placed where they would not obstruct the view of the audience. The activities of the large technical crew had to be so minutely pre-planned and so precisely co-ordinated that they would not detract from the sanctity of the service. In short, it would be difficult enough, for technical reasons, to shoot the sequences at

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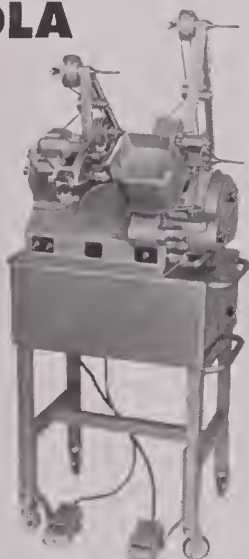
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all—but to do so without disturbing the natural order of things presented an almost insurmountable challenge.

The filming of the sermon itself was fraught with certain taboos that created serious mechanical problems. Ordinarily a sermon like this would be staged especially for the camera. It would be pre-edited to proper length for inclusion in the film. Clapsticks would be used to insure synchronization. The sermon would be repeated as many times as necessary to get a perfect "take" and provide a variety of camera angles.

In "Venture Into Faith," however, this simple approach could not be used. Clapsticks would have interfered with the mood of the service. Moreover, the sermon could not be interrupted for an extra take or camera angle. Even though only 10 minutes of sermon were called for in the script, the full 30 minutes had to be filmed *without interruption*.

Getting around the clapsticks taboo meant that, while the master sound track would be recorded on 16mm magnetic tape, it would be necessary to use *single system sound cameras* that would provide *cue tracks* to act as a guide for the editor to use in matching picture with the master tape track.

The choice of camera equipment boiled down to the Auricon because of the single system factor. But the capacity of the Auricon Pro model is only 200 ft. (about 5½ minutes of running time)—and there was 30 minutes of sermon to be filmed continuously. Four Auricons were ordered and set up in two banks of two each. One camera in each bank was composed on a *full shot* of the speaker. The other camera carried a longer lens set on a *close shot*. By a carefully arranged system of signals, as one bank of cameras neared the end of its 200 ft. capacity, the second bank was cued to cut in. Meanwhile, the first bank of cameras ran out of film and was reloaded. The system worked without a hitch on the first take—which was fortunate, since there could not have been a second take.

To film the crowd scenes to intercut with the sermon, all the lights which had been set up to illuminate the platform area had to be shifted around and aimed at the audience, but they had to so beamed as not to glare into the eyes of the spectators and cause discomfort. Also, the lights had to be balanced to illuminate the entire audience of 15,000 people, since panoramic shots took in the whole crowd. The lighting shiftover was ac-



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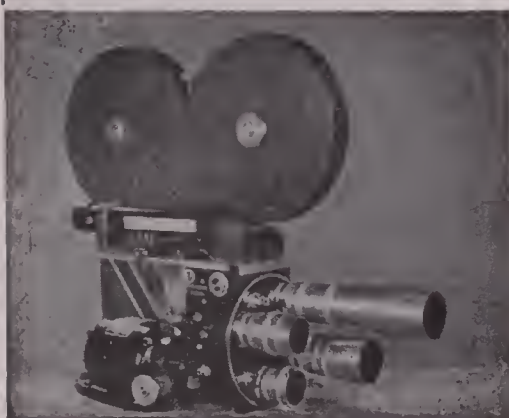
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complished in one busy morning through the diligent efforts of the electrical crew, and filming of the crowd was able to proceed that same night.

The filming of several dramatic dialogue sequences in the tent also presented serious problems. The biggest dilemma was caused by the fact that the tent had been erected only a scant 20 yards from a main highway, over which giant diesel trucks roared continuously, changing gears with a great clashing and banging. This made sound recording a torturous process. After a full day of stop-and-go recording, one major dialogue sequence was finally "in the can." However, there was scheduled for shooting another major sequence which depended largely upon a quiet atmosphere for its dramatic effect. In view of the sound problems, it was decided to abandon this touch-and-go recording situation and recreate the sequence in the studio. So, back in Hollywood, a segment of the large tent was duplicated in the studio, and filming of the intimate sequence progressed amid peace and tranquility. It is a tribute to the lighting and camera technicians that in the final print even members of Rev. Roberts' own organization could not tell the studio sequences apart from the establishing scenes filmed in Birmingham.

For certain dramatic sequences, a segment of the actual audience was recruited to appear as background for the action of the principal players. Director Herb Lightman managed to

get from them performances of unstudied naturalness which, coupled with the sincere acting of the lead players, resulted in an atmosphere of complete and almost documentary realism. Despite the many technical handicaps, the crew wound up its location shooting a day and a half ahead of schedule and went winging back to Hollywood to complete shooting of the studio sequences.

After editing, scoring and dubbing, "Venture Into Faith" was previewed for members of the film industry at the Samuel Goldwyn Studios, where production was completed. It had its world premiere before an enthusiastic audience of 17,000 people in Portland, Oregon. The film is completely underscored with an effective musical background, and reflects top-notch production finish in every phase. A Spanish-language version of the picture is now being prepared for release in Latin-American and European countries.

Great credit is due the fine technical crew that met the challenge and made the shooting of this intricate film possible. Special praise goes to director of photography Fred E. West, Jr. for an outstanding job of color lensing; to Joe Carpenter, chief gaffer on the studio sequences, and to supervising film editor Carl Pingitore for a superior job of cutting. From the broader viewpoint, "Venture Into Faith" proves that quality in film production is the inevitable result of top technical know-how combined with precise pre-planning.

STUDENT MOVIE MAKERS

(Continued from page 276)

As I have said, we settled on ten members. This number was decided upon as a maximum if each person was to take an active part, and as a minimum if the cost for each member was to be kept within reason. Our teacher originally agreed to work with us one day a week, either Saturday or Sunday, for four hours, but we usually lose track of the time and work longer. We start at nine or ten in the morning and very seldom stop before five or six in the evening. In addition to that we meet one night a week, usually on Thursday, so that we can see the footage we shot on the previous weekend and discuss what we might have done to improve it. We discuss the script we intend to shoot the following weekend. This helps us develop and clarify the concept of the character or situation to be portrayed. We discuss the motivation behind the action in

order to be sure of the validity of the scenes we shoot. When that is done, we take time out for a cup of coffee. Even while having coffee, we discuss professional films and film makers. Out of these talks come many interesting ideas which we try to put into practice in our own work.

Among us, we own four 16mm cameras, six tripods, a dozen clamp-on lights and light stands. Despite our limited number of lights, we manage to achieve creditable results when shooting interiors. Since we cannot afford large, professional lights, we are forced to apply techniques which create the illusion of large sets and elaborate equipment. We work only with the type of material we would have available, or could afford, if we were to go out and shoot a picture on our own. A weekly assessment pays for film and other equipment, which is made avail-



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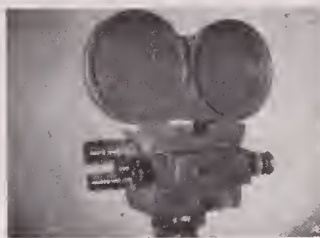
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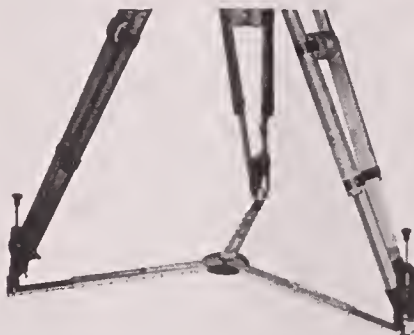
able to any member who requires it for a personal project.

At the first meeting, each member brought along a few hundred feet of film he had shot, so that Peter Glushanok could get some idea of the type of motion pictures each of us was interested in making. In this way, he could be sure to help us develop along those lines, rather than impose an arbitrary pattern which would hamper our own creativeness. On succeeding weekends, the group worked on scripts written by the different members. Peter showed us how to put across on film the feeling, emotion, or situation that we wanted to interpret, but were not able to because of our inexperience with lighting, camera composition, and direction.

We tried to pick situations that would present a different problem each time. One Sunday we were down at the Brooklyn Bridge by seven in the morning; the following week it was a late afternoon session in the park. We worked indoors, using a combination of sunlight and artificial light, and, another Sunday, we shot a comedy lit in high key. At each of these sessions, the group members were assigned to various jobs by the member

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Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

★ ★ ★ ★

★ ★ ★ ★

Allied Artists

- HARRY NEUMANN, "The Maze," (3-D) with Richard Carlson and Veronica Hurst. Wm. Cameron Menzies, director.
- ERNEST MILLER, "Vigilante Terror," with Wild Bill Elliott, Mary Ellen Kay, Myron Healey. Lewis Collins, director.
- ELLIS CARTER, "The Royal African Rifles," (Color) with Veronica Hurst, Michael Tate, Robert Osterlow, John Warburton. Leslie Selander, director.
- WILLIAM SICKNER, "Northern Patrol," (Lindsley Parsons Prod.) with Kirby Grant, Marion Carr, Claudia Drake and Gloria Talbot, Rex Bailey, director.
- HARRY NEUMANN, "Clipped Wings," with Leo Gorcey, Huntz Hall, The Bowery Boys, Anne Kimbell, Jean Dean, and Renie Riano. Edward Bernds, director.

Columbia

- BURNETT GUFFEY, "From Here To Eternity," with Burt Lancaster, Montgomery Clift, Deborah Kerr, Frank Sinatra, Donna Reed, Ernest Borgnine, Barbara Morrison, Philip Ober, and Mickey Shaughnessy. Fred Zinnemann, director.
- CHARLES (BUDDY) LAWTON, "Miss Sadie Thompson," (Beckwith Corp.) (3-D Technicolor) with Rita Hayworth, Jose Ferrer, Aldo Ray, Rudy Bond, Henry Slate, Peter C'hong and Charles Buchinski. Curtis Bernhardt, director.
- LESTER WHITE, "I Ride Alone," (3-D Technicolor) with Randolph Scott, Claire Trevor, Joan Weldon, George Macready, Lee Marvin, Roscoe Ates, Alfonso Bedoya and Ernest Borgnine. William Castle, director.
- FRANK PLANER, "Scalpel," with Charlton Heston, Lisabeth Scott, and Dianne Foster. Irving Rapper, director.
- HENRY FREULICH, "El Alamein," (No cast announced); Fred F. Sears, director.
- LESTER WHITE, "Gun Fury," (3-4, Technicolor) with Rock Hudson, Jed Carey, Donna Reed, Roberta Haynes, Lee Marvin. Raoul Walsh, director.

Metro-Goldwyn-Mayer

- ROBERT SURTEES, "Fort Bravo," with William Holden, Eleanor Parker, Polly Bergen, John Forsyth, and Richard Anderson. John Sturges, director.
- PAUL VOGEL, "Half A Hero," with Red Skelton, Jean Hagen and Polly Bergen. Don Weis, director.
- ROBERT PLANCK, "Torch Song," (Technicolor) with Joan Crawford, Michael Wilding, Gig Young, Dorothy Patrick, Dave O'Brien. Charles Walters, director.
- CHARLES ROSHER, "Kiss Me Kate," (3-D, Wide-Screen, AnscoColor) with Kathryn Grayson, Howard Keel, Ann Miller, Bobby Van, Bob Fosse, Tommy Ralls, Keenan Wynn, and James Whitmore. George Sidney, director.

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 JAMES VAN TREES

Paramount

- LOYAL GRIGGS, "Elephant Walk," (Technicolor) with Elizabeth Taylor, Dana Andrews, Abraham Sofaer, Peter Finch, Mylee Haulani, and Noel Drayton. William Dieterle, director.
- ARTHUR ARLING, "Red Garters," (Wide-screen, Technicolor) with Rosemary Clooney, Don Taylor, Gene Barry, Guy Mitchell, Pat Crowley, Joanne Gilbert, and Buddy Ebsen. Mitchell Leisen, director.
- RAY RENNAHAN, "Flight To Tangier," (3-D, Wide-screen, Technicolor), with Joan Fontaine, Jack Palance, Corinne Calvet, Robert Douglas, Jeff Morrow, Richard Shannon. Charles M. Warren, director.
- LIONEL LINDON, "Lost Treasure Of The Amazon," (3-D, Wide-screen, Technicolor), with Fernando Lamas, Rhonda Fleming, and Brian Keith. Edward Ludwig, director.
- DANIEL FAPP, "Knock On Wood," (Wide-screen, Technicolor) with Danny Kaye, Mai Zetterling, Torin Thatcher, David Burns, Leon Askin, and Abner Biberman. Producer-directors, Norman Panama and Melvin Frank.

R.K.O.-Radio

- NICK MUSURACA, "Arizona Outpost," (3-D Eastman Color) with Virginia Mayo, Dale Robertson, Stephen McNally, Arthur Hunnicutt, Rober Keith, Jay C. Flippen, Whit Bissell, William Phillips and Morris Ankrim. Alfred Werker, director.
- WILLIAM SNYDER, "Son Of Sinbad," (3-D, Color) with Dale Robertson, Lili St. Cyr, and Vincent Price. Ted Tetzlaff, director.
- HARRY WILD, "The French Line," (Edmund Grainger Prod., Technicolor) with Jane Russell, Arthur Hunnicutt, Craig Stevens, Steve Flag, and Laura Elliott. Lloyd Bacon, director.

20th Century-Fox

- EDWARD CRONJAGER, "Twelve-Mile Reef," (CinemaScope, Technicolor) with Terry Moore, Robert Wagner, Gilbert Roland, J. Carrol Naish, Harry Carey, Jr., Jacques Aubuchon, Angela Clarke and Peter Graves. Robert D. Webb, director.
- JOSEPH LASHELLE, "Be Prepared," with Clifton Webb, George Winslow, and Frances Dee. Henry Levin, director.
- MILTON KRASNER, "The Story of Demetrius," (Cinemascope, Technicolor) with Victor Mature, Susan Hayward, Michael Rennie, Ann Bancroft, Jay Robinson, Barry Jones, and William Marshall. Delmar Daves, director.

Universal-International

- CARL GUTHRIE, "Ma and Pa Kettle Hit The Road Home," with Marjorie Main, Percy Kilbride, Alice Kelley, Alan Mowbray, Brett Halsey, Emory Parnell, Oliver Blake and Stan Ross. Charles Lamont, director.
- CLIFF STINE, "Wings of The Hawk," with Van Heflin, Julia Adams, Abbe Lane, George Dolenz, Antonio oreno, Rudolfo Acosta. Budd Boetticher, director.

Independent

- LEE GARMES, "Outlaw Territory," (Broder Prod., Stereo-Cine, Pathe Color) with MacDonald Carey, Joan Dru, and John Ireland. John Ireland and Lee Garmes, directors.
- STANLEY CORTEZ, "Shark River," (John Rawlins Prods., Wide-screen Eastman Color) with Steve Cochran, Carole Mathews, and Warren Stevens. John Rawlins, director.
- GILBERT WARRENTON, "Sins Of Jezebel," (R. L. Lippert, Jr., Prod., Wide-Screen, Ansco Color), with Paulette Goddard, George Nader, John Hoyt, Eduard Franz, John Shelton, Margia Dean, Joe Besser, Carmen D'Antonio. Reginald Le Borg, director.
- LEE GARMES, "Hannah Lee," (Broder Prod., Stereo-Cine 3-D, Pathe Color) with MacDonald Carey, Joanne Dru, and John Ireland. John Ireland and Lee Garmes, directors.
- JOSEPH BIROC, "Rage Of The Jungle," (Alpine Prods.) with Glenn Ford, Ann Sheridan, Zachary Scott, Jack Elam, and Rodolfo Acosta. Jacques Tourneur, director.

whose project was being worked on. He was the director, and would select someone to act as his cameraman, decide on camera angles and work out the lighting, etc. Other members would check the amount of current available, set up the lights, slate scenes, keep a script record of all that happened, and perform numerous other jobs. So that we would become familiar with all phases of production, each one of us handled a different job each week.

At a typical shooting session we get out the equipment and set it up, give everyone a job and get ready to start shooting. The director selects the camera angle. At this point our teacher checks the finder and asks why this particular angle has been selected. Each of us turn takes a look through the finder so that we can enter or evaluate the discussion. He might want to know, for example, if this low angle, making the actor appear taller and crowding him to the top of the frame, helps in creating the desired mood or in emphasizing the character. If it does, then it is acceptable, and not because it makes an interesting angle. He will also remind us to consider the action to follow in selecting the camera angle. We might have differing ideas about the proper angle, but the final decision is the director's. How effective his choice was will be decided when the footage is shown the following Thursday.

The angle having been decided upon, the next job is the lighting. The first light set is the key light. Fill lights are added where needed to keep the picture within a desired ratio or contrast. Mr. Glushanok watches us as we work and if he sees that we are striving for an effect but cannot attain it, he shows us how it might be achieved. While the actor is being rehearsed, the meter reading, focus and distance are checked. Now, all that is left to do is to push the button. When we get a good "take," lights are killed and we're ready to start on the next shot.

These sessions were very valuable to all of us, but, by the end of ten weeks, the group recognized some basic needs which were not being served, and decided to change the plan of work. Until this time, we had been spending only one day on each member's script, with the idea that he would finish it on his own. Thus some members of the group were becoming discouraged and losing interest, because they felt nothing was being carried through to completion. It was then decided to have a different one of us shoot a short movie each weekend, screen it, select the best takes, edit it to a final form, and then screen it for the others, so that we

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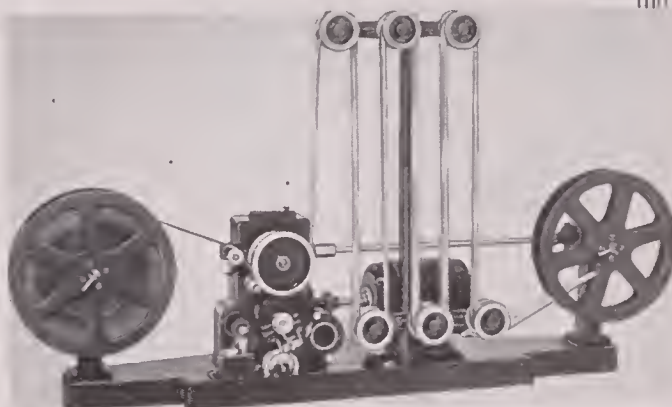
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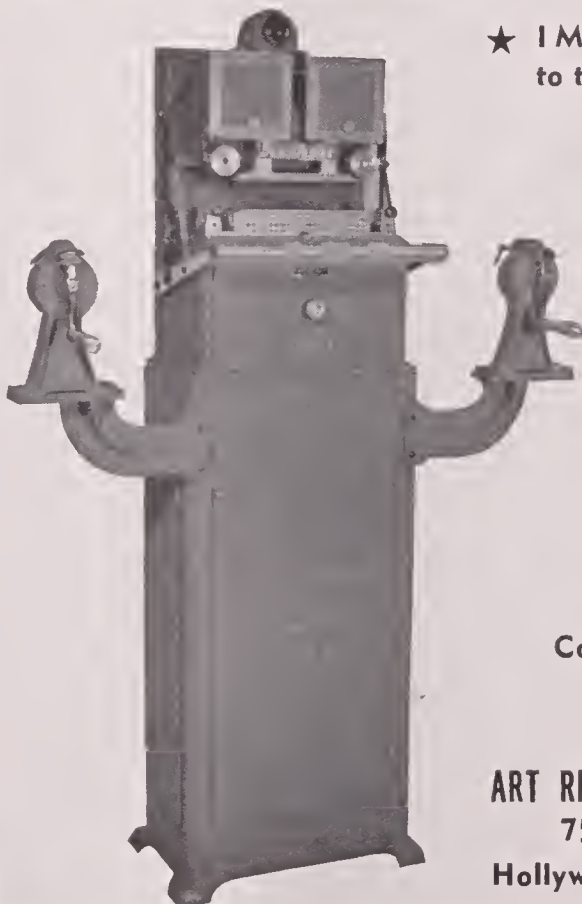
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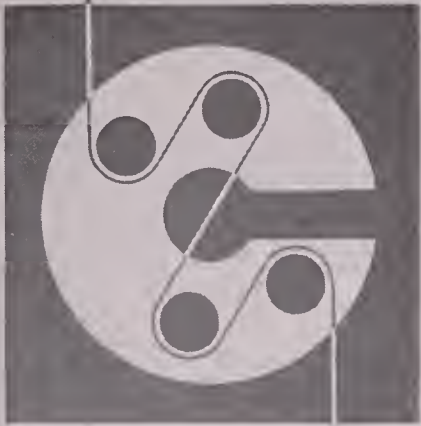
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could applaud the good and suggest changes for the bad. This is the way we are working now, and it has proved to be very effective. We try, in three or four shots, to put across the character of a person who is performing some simple activity. Each week a different type of personality is depicted, using the same actress, setting, and activity, but creating a change through lighting, camera angle, and editing.

Some have suggested that there is

danger in going on as we have, because we could continue studying indefinitely and never get started on our own. Therefore, we plan to drop the Sunday sessions and get out and make our own movies. We're going to continue having the evening meetings, though, so that we can exchange ideas, show the footage we shoot, get suggestions on how to solve problems which have stumped us, and, most important, just to keep the group together.

NEW CAMERA DOLLY

(Continued from page 273)

these two mediums has proven to be a happy coincidence for engineering designers and manufacturers concerned with this type of equipment in that the same design, if carefully planned, may be used in either film making or television with only minor modifications, such as seat placement, TV cable guards, etc. The design objective in the preliminary work on the Multidolly was an item of equipment which was not only capable of providing extreme camera maneuverability but was adaptable to more than one manner of camera installation on the dolly.

In figures 1 and 2 the equipment is shown with an automatic hydraulic camera hoist which permits change of camera lens height, either up or down, during photography. The basic hydraulic circuit consists of six major components, as shown in figure 2. The hydraulic fluid is pumped by the hand pump (1) from the reservoir (2) to the pressure storage accumulator (3). The pressure is indicated on the guage (4) and the operator controls the upward and downward motion of the camera by using the valve (5) to direct the fluid into the single-acting cylinder (6) for upward motion. An alternate handle position of the same valve is used to open the fluid line so the weight of the equipment on the hoist will exhaust the cylinder for downward motion, with the fluid directed back to the reservoir. The sensitivity of the control valve is such that the start and finish of a vertical move may be held imperceptible when the picture is projected.

The steering mechanism was designed to provide the optimum in maneuverability which was consistent with practical mechanical construction. In any wheeled vehicle which must negotiate a turn, the ease with which it may be moved is affected by the floor surface, the weight, the wheel diameter, the tire material, and most important, the position of each wheel relative to

the point about which the vehicle is turning. The steering mechanism permits two optional manners of steering, as diagrammed in figure 3. Number 1 shows position the wheels must be in before a shift may be made from one type of steering to another. Number 2 shows an example of the wheel positions in parallel steering, wherein all wheels remain parallel to each other and move in unison with the steering handle. The degree of rotation which the entire combination of handle and four wheels is capable of is unlimited and may go through several 360° rotations if the photographic treatment of the scene requires such a camera motion.

Number 3 shows the relative wheel positions in circular or differential steering. The line through point C extends to infinity on either side of the dolly and is the locus of an infinite number of points about which the dolly may be turned. The center about which the dolly is turning in number 3 is at R, and if all the wheels are to roll freely without any side skid they must be positioned as shown with the theoretical projection of each wheel axle passing through the center of turn.

Number 4 shows the extreme position of the wheels in circular steering, wherein the center of turn (R) has moved within the body outline of the dolly and coincides with the center point C. The requirement of accurate wheel positioning is dictated by the geometry of steering as outlined briefly above, and any compromise will contribute much in making the equipment sluggish in maneuvering.

Parallel steering, by definition, is an easy thing to accomplish mechanically, but the differential positioning of the wheels in circular steering presented a new problem in the science of differential mechanisms. The scope of this article does not permit going into the Multidolly steering mechanism in detail; however, the problem

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(Continued on next page)

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(Continued from Preceding Page)

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ATTENTION PRODUCERS: This summer I will be in Portuguese East and South Africa directing the photography of *STRANGE HORIZONS*, a full length 35mm. color feature, for Calvert Productions of London. Expect to return to New York about October 20th at which time I will again be available to shoot your pictures. Airmail will reach me at 66 Market Street, Johannesburg, South Africa until August 20th, then Foster's Agency, Piccadilly House, Piccadilly Circus, London until October 15th. **HOWARD CAGLE**, 14 East 64th St., New York.

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has been solved and the result is a precision assembly of mechanical components which delivers without compromise the required wheel positions for circular and parallel steering.

The wheel motion generated by this steering mechanism is transferred to the wheels themselves by roller chain and the chain tension, and alignment of each wheel is adjusted by chain sprocket idlers on each strand of chain. The position of the steering handle (Fig. 2, number 7,) for any position of the wheels is such that the necessary force to propel the dolly is applied in equal amounts at each end of the steering handle and at 90° to the alignment of the handle. The handle for making the shift in steering (Fig. 2, No. 8) is located immediately forward of the steering column and is readily accessible to the operator of the dolly. The motion necessary to accomplish the shift is a 180° rotation of the shift handle with a slight vertical motion at the midpoint of the rotation.

It is conceivable that certain film productions do not require a change of lens height any more convenient than that which may be attained with a tripod. So with an accessory support for the front leg of the tripod the most basic combination of camera equipment may take advantage of the extreme steering maneuverability of the

Multidolly, using the dolly carriage only without the hoist, and the operator is provided with a large convenient working space back of the camera. A problem which is encountered not frequently but inevitably in every studio is how to get the lens lower than whatever level it may be at the time. To anticipate this an auxiliary support arm has been planned which will hold the lens to floor dimension at a minimum with the camera placed slightly forward of the front wheels, again using the dolly carriage only, without the hoist. This positioning of the camera leaves the entire bed area of the dolly clear for crew convenience.

Future plans for the Multidolly call for installation of seats for the cameraman and operator, and tests are presently being conducted in actual production to determine the most suitable type of seat and placement of same.

The designer and manufacturer of the Multidolly, in submitting it to the film industry for consideration, said, "We believe that the final measure of the worth of such equipment lies in what it does for the camera, and the ease and convenience with which it may be used."

All technical data supplied by John McCollough of Cinetel Products, Hollywood.

HOLLYWOOD BULLETIN BOARD

(Continued from page 254)

raphy of the initial series of Jack Benny TV shows, to be produced by Desilu Productions. Tannura also photographs the Burns and Allen TV shows, and will return to this chore when the company resumes production in the fall.

FERDINAND EICH, ASC, formerly with the Paramount studio laboratory, is now associated with Technicolor in Hollywood.

JOHN W. BOYLE, ASC, and **HAL MOHR, ASC**, last month were reelected to the board of governors of the Academy of Motion Picture Arts and Sciences for 1953-54.

WM. N. WILLIAMS, ASC, is in Zurich shooting background plates for Paramount.

LEON SHAMROY, ASC, three-time Academy Award-winner, and the first cinematographer to shoot a Cinemascope production in Hollywood, was married in Hollywood last month to film actress Mary Anderson.

ASPECT RATIO of the screen on which Warner Bros.' "House of Wax" was projected in its Hollywood premiere was 160 to 1, according to studio's William Mueller, and not "just slightly larger" than the normal 133 to 1, as stated here last month.

CHARLES G. CLARKE, ASC, is in Europe for 20th Century-Fox, directing second-unit photography for "The Valiant" in Cinemascope and color.

JACK CARDIFF, ASC, Academy Award-winning photographer, has been signed to direct the Errol Flynn starrer, "The Story of William Tell," which goes into production in Rome this month. This will mark his debut as a director.

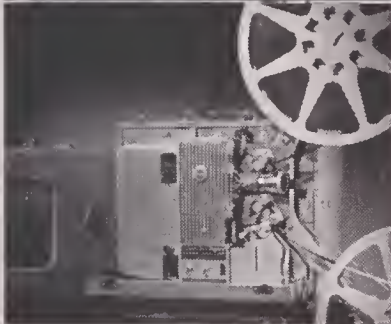
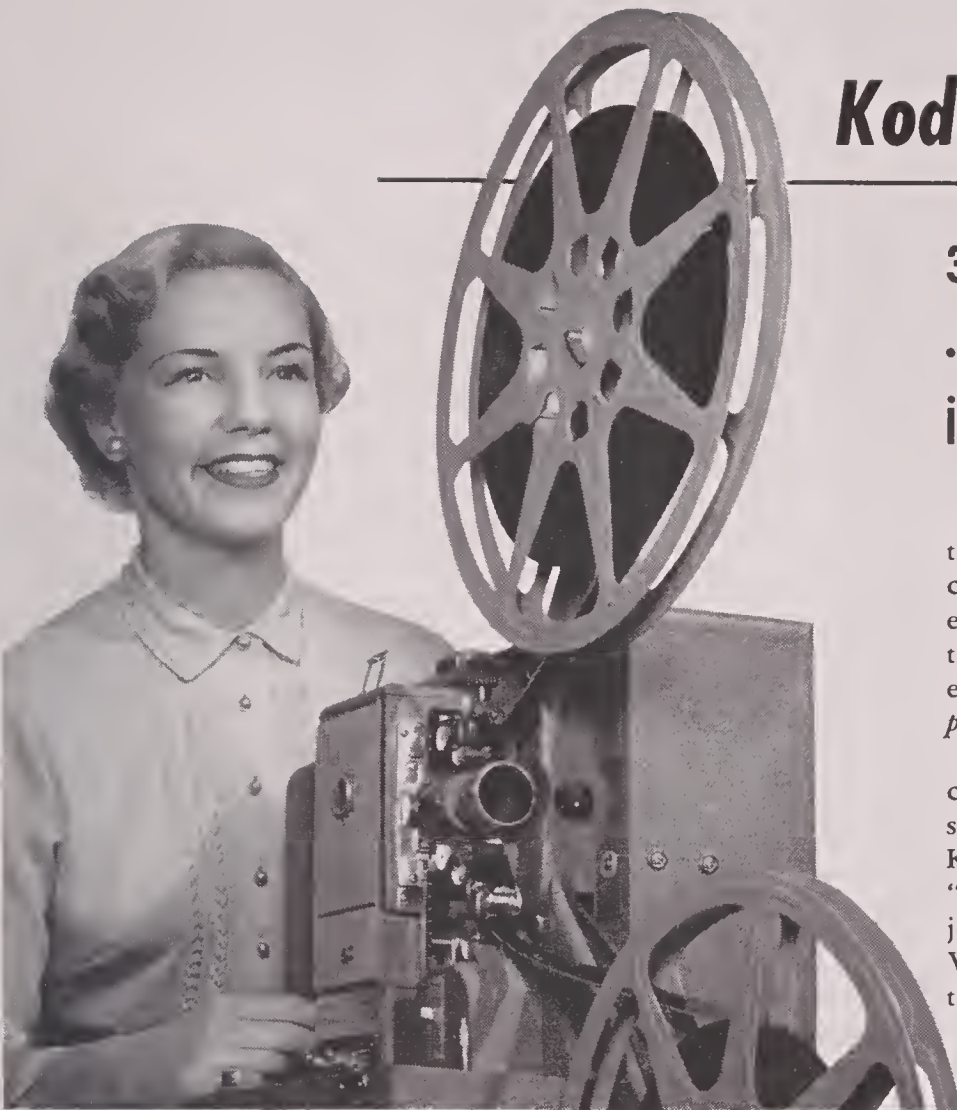
JAMES WONG HOWE, ASC, made his directorial debut for producer Albert Palca last month. Production is an original screenplay based on the life of Abe Saperstein, owner-coach of the Harlem Globetrotters' basketball team. Picture was filmed in New York.

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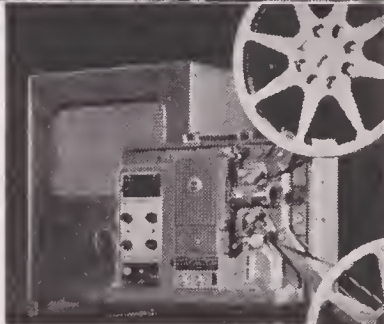
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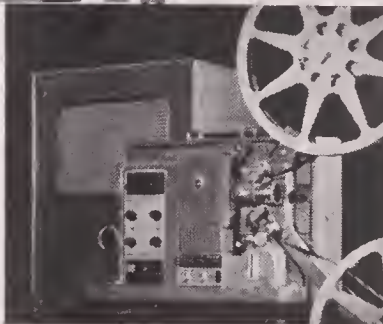
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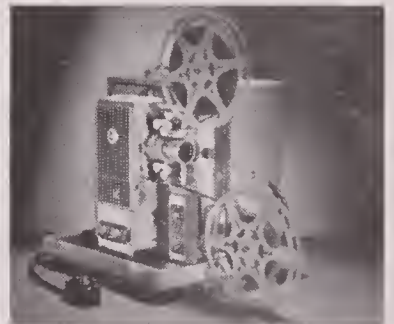
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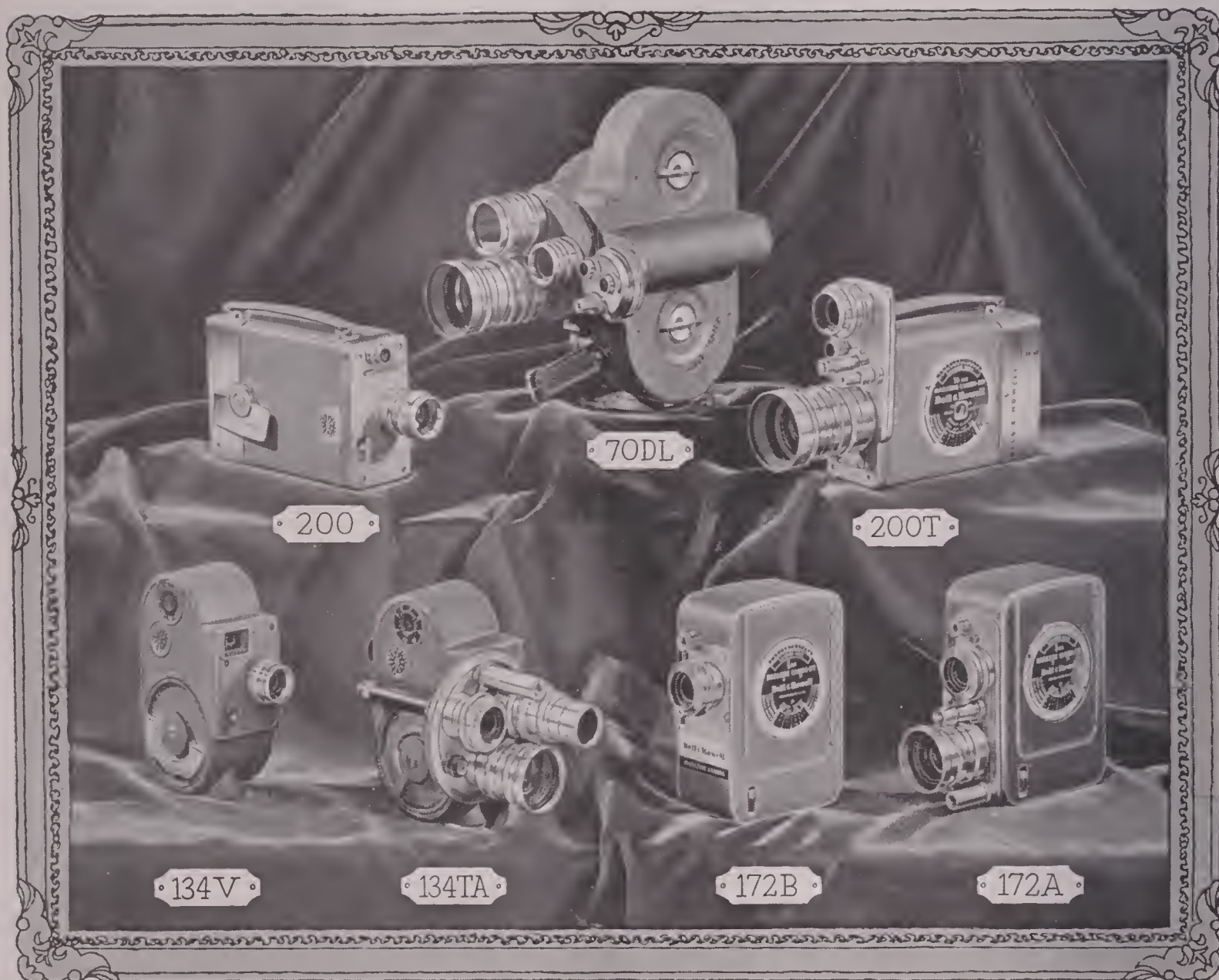
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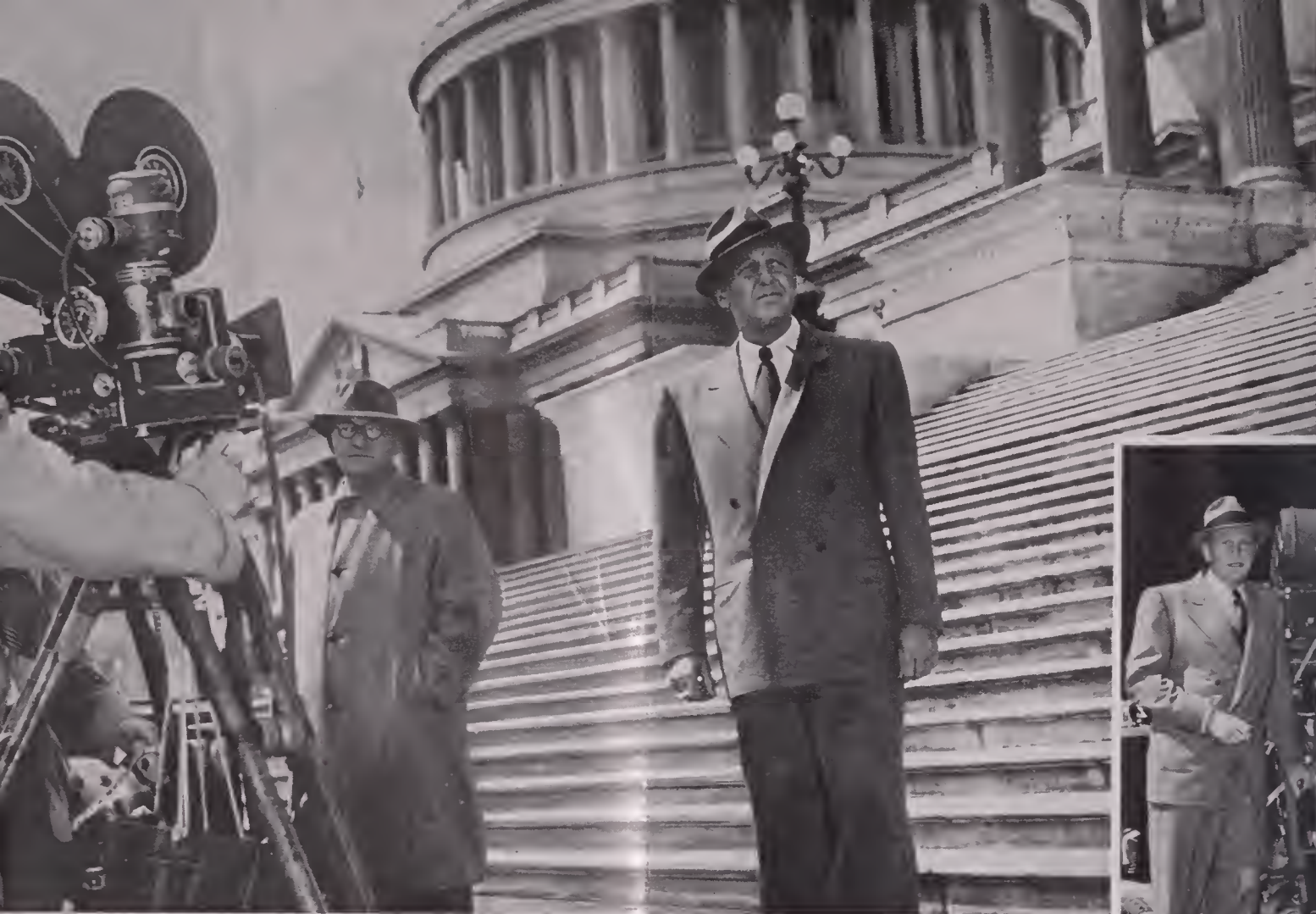


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- FILMING THE MARCIANO-WALCOTT BOUT IN 3-D • 3-D TELEVISION
- EASTMAN COLOR FILMS • VISTARAMA • BASIC LIGHTING
- FOR INDOOR MOVIES • PLANNING SOUND SCRIPTS

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Washington, D. C.—“Mike Barnett,” 2-fisted “private eye,” set for fast action. Seen in photo are: Director William Berke (left) and star, Ralph Bellamy. Portions of this “Man Against Crime” sequence were taken in a snow squall. Tricky lighting and weather problems are easily handled by “Superior” 3!



Relaxing before a “take.” Left to right: Mr. Bellamy, Head Cameraman Don Malkames and Producer Edward J. Montagne.

Action-packed TV mystery shot on Du Pont “Superior” 3

In shooting “Man Against Crime” on Du Pont Motion Picture Films, camera crews are able to pack realistic, “live” action and tone into every foot of this popular TV thriller starring Ralph Bellamy. The exceptional speed of Du Pont “Superior” 3 Type 927 Film, for example, frequently eliminates the need for artificial lighting . . . facilitates top-flight work under the toughest conditions.

In discussing the advantages of Du Pont films, Head Cameraman Don Malkames, A.S.C., stated: “On a tight shooting schedule, we have to depend on the film to make every ‘take’ count. That’s why we like Du Pont ‘Superior’ 2 and ‘Superior’ 3. When using ‘Superior’ 3, we can work in all kinds of lighting and weather . . . and still get the results we want.”

True enough . . . lighting and weather can often put a crimp in shooting plans. Sequences for “Man Against Crime” have been filmed during snow squalls . . . in teeming rain in New York harbor . . . even on dim subway platforms! Yet Du Pont “Superior” 3 has caught the action . . . produced crisp, sparkling scenes

so essential to quality productions for TV. And in that connection, Producer Edward J. Montagne summed up: “Du Pont films meet *all* our needs. Whether we’re shooting indoors or out, there’s a Du Pont film to do the job.”

Today . . . many prominent motion picture and TV cameramen echo Mr. Malkames’ comment. From experience they, too, have found that these two Du Pont films produce the most desirable results in the studio or on location. The extreme speed and exposure latitude of “Superior” 3 solve the problem of adverse weather . . . meet the challenge of even the poorest lighting. The adaptability of both films gives the cameramen a full range that

insures the “take” . . . saves remakes . . . provides brilliant results. For detailed information on the various types of films available, contact your Du Pont Technical Representative, or write the nearest District Sales Office listed below. E. I. du Pont de Nemours & Co. (Inc.), Photo Products Department, Wilmington 98, Delaware. *In Canada: Canadian Industries Ltd., Montreal.*

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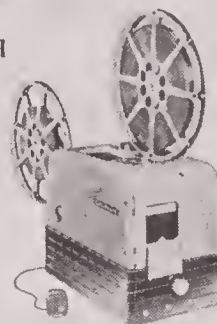


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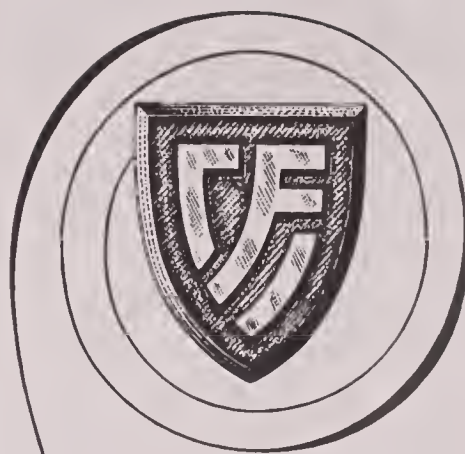
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ON THE COVER

DIRECTOR of photography Lee Garmes, ASC, behind the Stereo-Cine 3-D camera, lines up a shot for "Hannah Lee," which he co-directed with actor John Ireland (left) as well as photographed.—Photo by Alex Kahle.

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Hollywood Bulletin Board

CHARLES G. CLARKE, President of the ASC, has asked the Society to appoint a successor to fill his unexpired term, due to his extended assignments abroad. Twentieth Century-Fox which sent Clarke to Europe two months ago to direct the second-unit photography of "The Valiant," has found other work for him to do in Europe, which will delay his return to Hollywood until after the first of the year.

JAMES VAN TREES, ASC, will continue to direct the photography of the new series of "You Bet Your Life" TV show featuring Groucho Marx, when filming of the show is resumed in September. Filmcraft Productions, which has been producing the show, has again been signed to record the weekly TV programs on film.

VIRGIL MILLER, ASC, whose memorable photography of "Navajo," brought him additional international reknown, is again teamed with producer Hall Bartlett in a new production enterprise. Miller is directing the photography of Bartlett's latest production, "Crazylegs. All-American"—Miller's first assignment in wide-screen photography, incidentally.

WILLIAM MELLOR, ASC, after an extended absence from the Paramount lot, where he previously filmed many pictures, has returned there to direct the wide-screen photography of "Alaska Seas."

FRED W. JACKMAN, ASC, and **ARTHUR EDESON, ASC**, last month supervised the installation of a new 9-hole pitch-and-putt golf course on lawn of the ASC Clubhouse in Hollywood. The course provides one more recreational facility for members having time on their hands between picture assignments.

TOM TUTWILER, ASC, filmed added ground and aerial scenes last month for Carl Kreuger's Super-Cinecolor feature, "Saber Jet." Location was Nellis Air Force Base at Las Vegas, Nevada.

FRANK PLANER, ASC, with **RAY CORY, ASC**, handling second-unit photography, is well into the filming of Kramer Company's "The Caine Mutiny" for Columbia Pictures. The company, after

shooting on location in Yosemite and in San Francisco, sailed for Hawaii, where much of the picture exteriors will be filmed.

JOSEPH RUTTENBERG, ASC, back from a 10-week combined advisory filming assignment in Europe for MGM, says Europeans are more movie-conscious than ever before. While in Paris, Ruttenberg also visited Professor Henri Chretien, creator of the CinemaScope lens.

ALFRED GILKS, ASC, whose Technicolor photography of "American In Paris" netted him an Academy Award, is en-route to Israel where he will photograph a series of television films for Ford Films, Inc.

KARL STRUSS, ASC, an avid Stereo-Realist photographer when he isn't behind a movie camera, is in Rome, Italy, where he is photographing Italy's first 3-D feature film in color. Struss' first visit to Italy was 44 years ago as a young student-tourist. He returned again 28 years ago, this time to photograph "Ben Hur," featuring Ramon Navarro. In off moments, Struss is re-photographing scenes he photographed on earlier visits and will present the pictorial comparisons on his return to Hollywood.

CHARLES ROSHER, ASC, who also is a Fellow of the Photographic Society of America, is among 20 candidates nominated to be chosen "Mr. PSA" when the Society meets in Los Angeles next month. Rosher, incidentally will serve on the judging committees of PSA's International Club Print Competition, and the Amateur Motion Picture Competition to be conducted by the Society during the Convention.

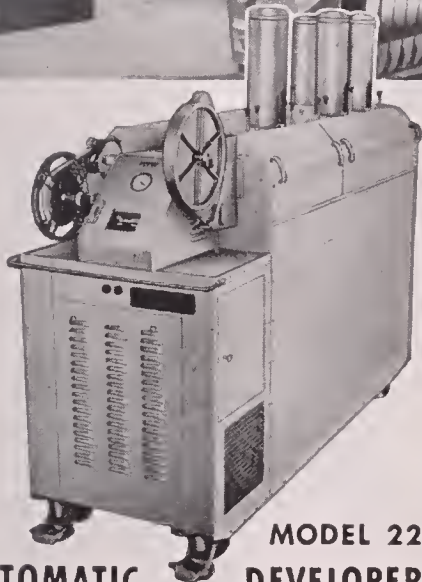
ERNEST HALLER, ASC, is in Munich, Germany, directing the color photography for King Brothers' wide-screen feature production, "Carnival," starring Anne Baxter and Steve Cochran.

PHILIP TANNURA, ASC, his camera assistants, the electricians and all the rest of the crew that has been shooting the Burns and Allen TV shows, tendered a trophy to George and Gracie at

(Continued on page 354)

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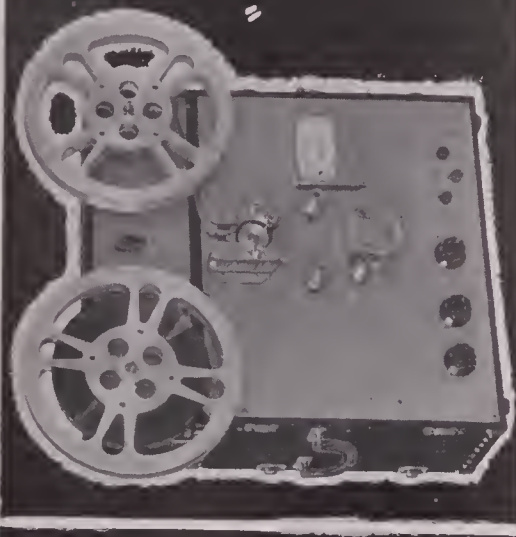
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3-D

and WIDE SCREEN News Roundup

Russia's 3-D system, said not to require viewing glasses nor two projectors is expected to be shown in London, England, in December. A British exhibitor is said to have closed a deal with the Russians enabling him to show films made in Russia by the new process. Besides the 3-D system, the exhibitor reportedly brought back from Moscow a 5-year agreement as sole British importer of Russian-made films.

Prints are being made available of a feature film produced by the Nord 3-D system. The Nord system eliminates the need for two films, as with most other 3-D systems. In the photography, two frames are placed alongside each other lengthwise, which are erected properly on the screen in the projection process. Developer of system is Roy Clapp, whose work in the 3-D field enabled Nord to present one of the first 3-D attachments on the market for making and showing 16mm home movies in 3-D.

"Gone With The Wind" is to be re-issued by MGM for showing in wide screen with an aspect ratio up to 1.85 to 1. A survey of the picture has revealed that none of the scenes will suffer "cut-offs" due to the necessary "cropping" top and bottom for wide-screen presentation. If the move proves successful among exhibitors, it is certain to bring back to the screen a lot more of "old favorites" which can be screened with the "new look."

Keeping pace with Hollywood's newest advances—3-D and wide-screen—is Eastman Kodak Company, whose new Eastman color negative (see description elsewhere in this issue. Editor) is ideally suited to the production of pictures in the new formats. The new color negative is a single strip of film which may be shot in any conventional 35mm camera. It has high speed and unusual resolving power. It can be used with any camera lens, whether on the conventional Mitchell's or Cinemascope, or Cinerama. It can be photographed with all its advantages with standard set lighting on standard shooting stages or exterior locations.

The processing, for the most part, is handled in Hollywood by Technicolor Corporation's labs. Slated also to process the new film is Consolidated Film Industries and Pathe Laboratories. The cost of the new color negative is said to be around 1¼c per foot.

The lack of standardization on wide-screen aspect ratios by the major studios—so far there are five different formats—is said to be keeping film exhibitors from going ahead with plans to prepare their theatres for showing films with the new look. Actually, wide-screen is here to stay and the wise exhibitor will install in his theatre the widest screen the width of the house will permit, and thus be prepared to screen all the wide-screen productions as they are released and made available to him. Actually new screen installation and purchase of two new wide-angle projection lenses need not involve the astronomical costs some trade papers have indicated. Enterprising exhibitors, in many cases, can build and install their own wide format projection screens. Equipment for stereophonic sound can be acquired and installed later.

Don't sell 3-D films short! Columbia Pictures reveals that its first stereo feature, "Man In The Dark," already has grossed in excess of \$1,000,000 in its first five weeks of domestic release.

"Sam Space" is title of first 3-D theatrical short subject, featuring puppets now in preparation by Volcano Productions, Hollywood.

Within five years, flat pictures will not be shown in American theatres—at least in their present form, Richard F. Walsh, international president of the IATSE told a Hollywood labor group recently.

Natural Sound Corp. has sold Interstate Circuit of Texas 35 complete units of its stereophonic Natural Sound, manufactured by Kinevox. First deliveries will be made to the Aztec Theatre, San Antonio; Palace, Dallas, and Hollywood, Fort Worth. Balance will be delivered in 30 days.

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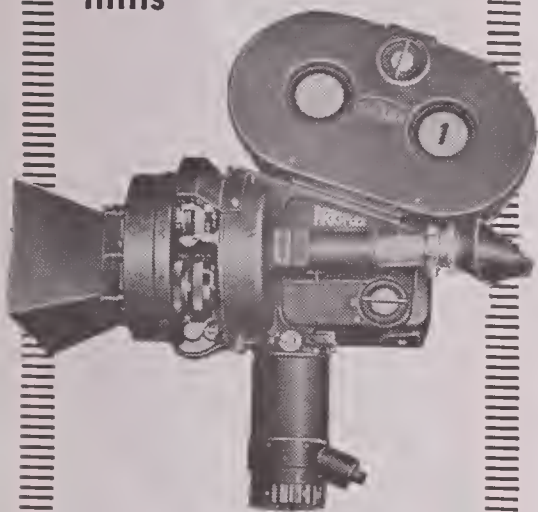
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Television Scripts For Staging And Study
—By Rudy Bretz and Edward Stasheff.
Publishers, A. A. Wyn, Inc., 23 West
47th St., New York 36, N.Y.: 328 pages;
\$4.95.

This new volume by the authors of *The Television Program*, covers virtually every type of TV script—show currently presented, and is designed specifically for the student director and producer.

The book is divided into three parts: Part one deals with the many specific questions TV students and teachers develop in the course of their work, and provides suggestions for study. In addition there is an invaluable and complete guide to camera techniques and a glossary listing directors' standard marking symbols.

Part two contains eight royalty-free scripts and program formats, along with camera patterns and a detailed analysis of staging methods. The scripts have been chosen not only for their merit, but also because of their suitability for presentation by a school or workshop group with limited space and facilities. There are many photographs of actual sets and diagrams of microphone and camera setups.

Part three is a detailed study of some of commercial television's outstanding productions, including an installment of the popular *Mama* program; "The Line of Duty," a fine example from the *Cameo Theatre* series; and "Control of Climate," a documentary from the program *American Inventory*.

This book provides for the student an insight into the everyday activities of the television professional. For the teacher, it is an indispensable manual of teaching techniques and a storehouse of up-to-date information.

Exposure Meters and Practical Exposure Control—by J. F. Dunn, MIEE, FRPS.
Publishers, The Fountain Press, London, England. 240 pages; \$7.75.

This book has been designed to help every photographer—amateur and professional—to understand his meter and to use it in the most appropriate manner. More than this, it offers accurate and comprehensive answers to more exposure questions than have ever before been dealt with between the covers of a book.

A world-famous authority on exposure meters, the author has personally and meticulously tested the majority of

exposure estimating devices and many films available today. His findings are frankly and fully discussed under many headings under two main categories: "Still Monochrome Photography" and "Motion Picture and Color Photography."

Every type of exposure estimating device is considered and reported upon, from the simple calculator to the more advanced photometer. Over 1000 illustrations show practical methods of meter usage and exposure control. Also, a new duplex method of using incident light meters for color and motion picture work is presented.

American Cinematographer Handbook and Reference Guide—Compiled and published by Jackson J. Rose, ASC, 458 So. Doheny Drive, Beverly Hills, Calif. 310 pages; \$5.00.

The fact this valuable book is now in its eighth printing attests to its great value and tremendous popularity. Indeed, there is no other handbook available which provides the cinematographer, amateur or professional, with so much valuable data for all phases of motion picture work.

Like each of the seven editions which preceded it, the new volume is larger in page content and more comprehensive and, needless to say, more useful.

Sections devoted to such basic data as films of all kinds—35mm, 16mm, and 8mm—filters and their factors, cameras, lamps, exposure meters, etc., all have been brought fully up-to-date. In addition, many new sections have been added. These include Television Photography, Kinescope Recording, Latensification, Rear Projection Process, Underwater Photography and Zoom Lenses. Up-to-date informative data on many new color films and processes have also been added.

Cine Hints, Tips and Gadgets—by Denys Davis, Publishers: The Fountain Press, London, England. U. S. agent: Rayelle Foreign Trade Service, 5700 Oxford St., Philadelphia, Penna. 100 pages; \$2.75.

This book is intended for the novice and advanced amateur movie maker alike. It represents experience gained by producing films for, and presenting films to the public and fellow enthusiasts during the past 15 years. Described are tips for making better films; gadgets that any handyman can make.

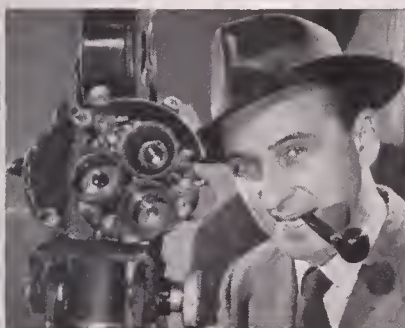
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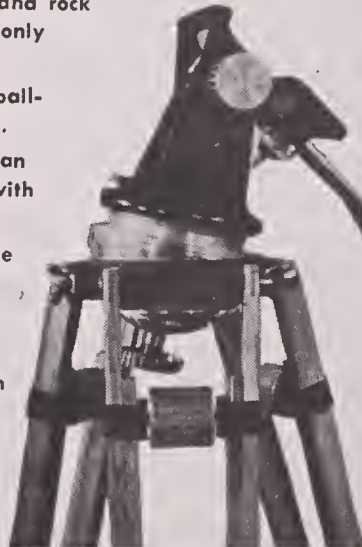
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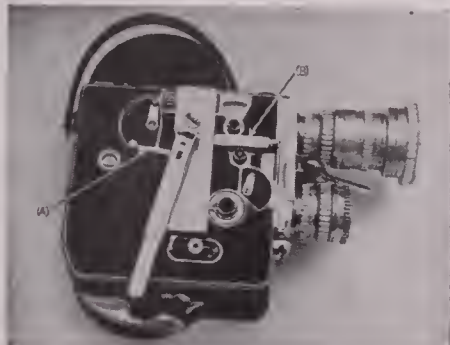
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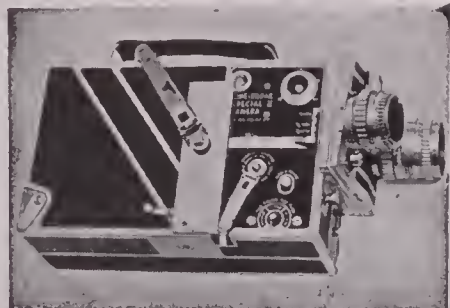
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JOSEPH YOLO

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WHAT'S NEW

in equipment, accessories, service

Kinevox Expands—Kinevox, Inc., 116 So. Hollywood Way, Burbank, makers of Kinevox portable synchronous magnetic recording and playback equipment, broke ground last month for a new addition to company's present building, which houses its main office, assembly plant and shipping department. New addition, located next door, will be 85'x25' in size. Expansion was made necessary by company's recent development of magnetic theatre playback equipment, which is marketed exclusively by Natural Sound Corporation, Hollywood.

Film Footage Counter—Florman & Babb, 70 West 45th St., New York 36, N. Y., announce a new type all-purpose electrical film footage counter. There is a single and a dual model. The latter is a resettable, synchronous counter for 16mm and 35mm film. Monitor lights



indicate when counter is switched on for operation. Another selector permits switching unit to either "Sync" or "Line" operation. Unit, which operates by a smooth, low-speed, high-torque synchronous motor, operates from any 110-volt, 60-cycle power supply line.

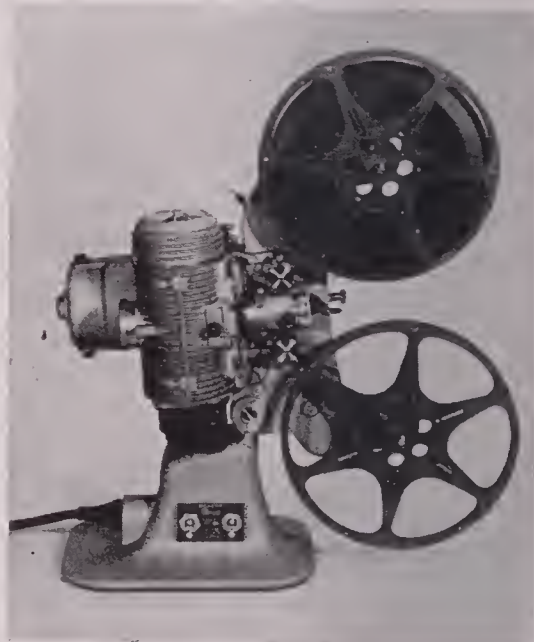
Further details and prices may be had by writing the company and mentioning *American Cinematographer*.

Electronic Mixer—Bell & Howell Company, Chicago 45, Ill., announces an electronic mixer and volume control for use with the Filmosound model 202 16mm recorder-projector. Unit provides a simple, accurate means of mixing sound signals from microphones, phonographs and tape recorders. Four separate input channels permit mixing sound from any or all of the three. It is self-contained and operates from any 115-volt, 50-60 cycle power supply. Setting



of recording levels of each channel is afforded by volume-level meter on front of panel. Matching headphones afford monitoring of sound during the recording process. List price is \$140.00. Equipment is available through Bell & Howell dealers.

Scheibe Filters for Wide-Screen—Scheibe Filter Company, P. O. Box 16834, Hollywood, one of the oldest makers of filters in the business, is now turning out ND and diffusion filters for 20th Century-Fox CinemaScope lenses. New filters are larger than conventional square filters—4"x4" in size—necessary for the larger area of the CinemaScope lens.



Projector Sports New Features—Bell & Howell Company's Regent 8mm movie projector is now being produced in a new, light color called fawn metallic. Other improved features include lifetime lubrication, fast power-rewind.

(Continued on Page 314)

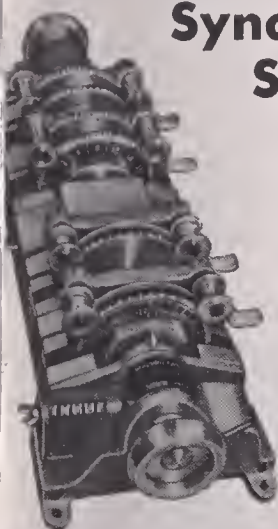
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Any combination of 16mm and/or 35mm sprockets assembled to specification. Cast aluminum. Foot linear type, adjustable frame dial. Fast finger roller release. Contact rollers adjusted individually for positive film contact. Sprocket shaft slip lock, foot-age counter, etc.



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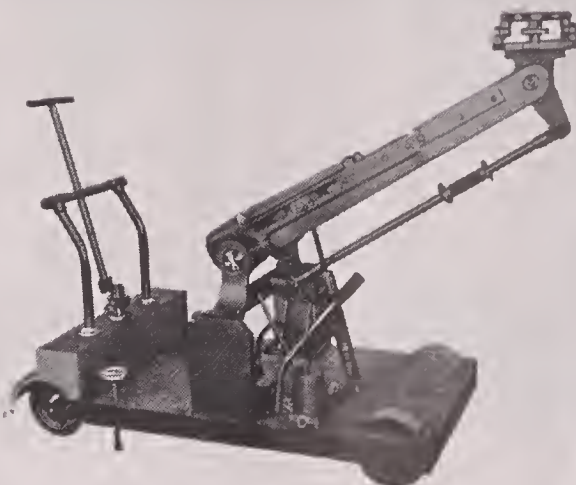
For Studio or on Location. Lightweight — collapsible — for TV and motion picture production. Sturdy construction. Boom telescopes 7 to 17 ft. Rear handle for directional mike control. A remote control permits 360° rotation of the microphone. Operator can push the boom and operate microphone swivel simultaneously.

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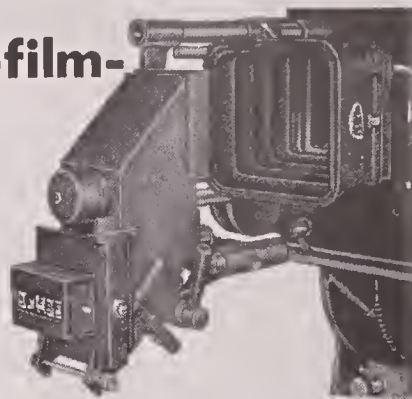
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Pays for itself in production savings on the set. A New Development! Eliminates clap stick synch and slate on set. Mounts on double arm bracket to work with BNC, NC, Standard, 16mm Mitchell and all types of blimps and Geared Head. Interlocks with Sound Recorder.

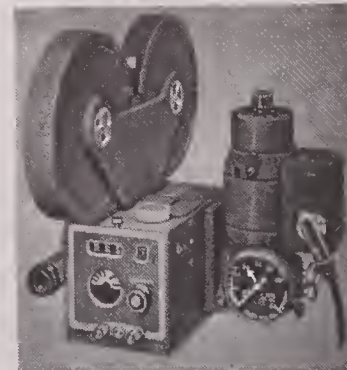
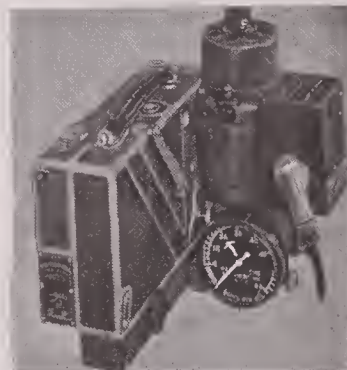
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ANIMATION MOTORS: Cine Spe-
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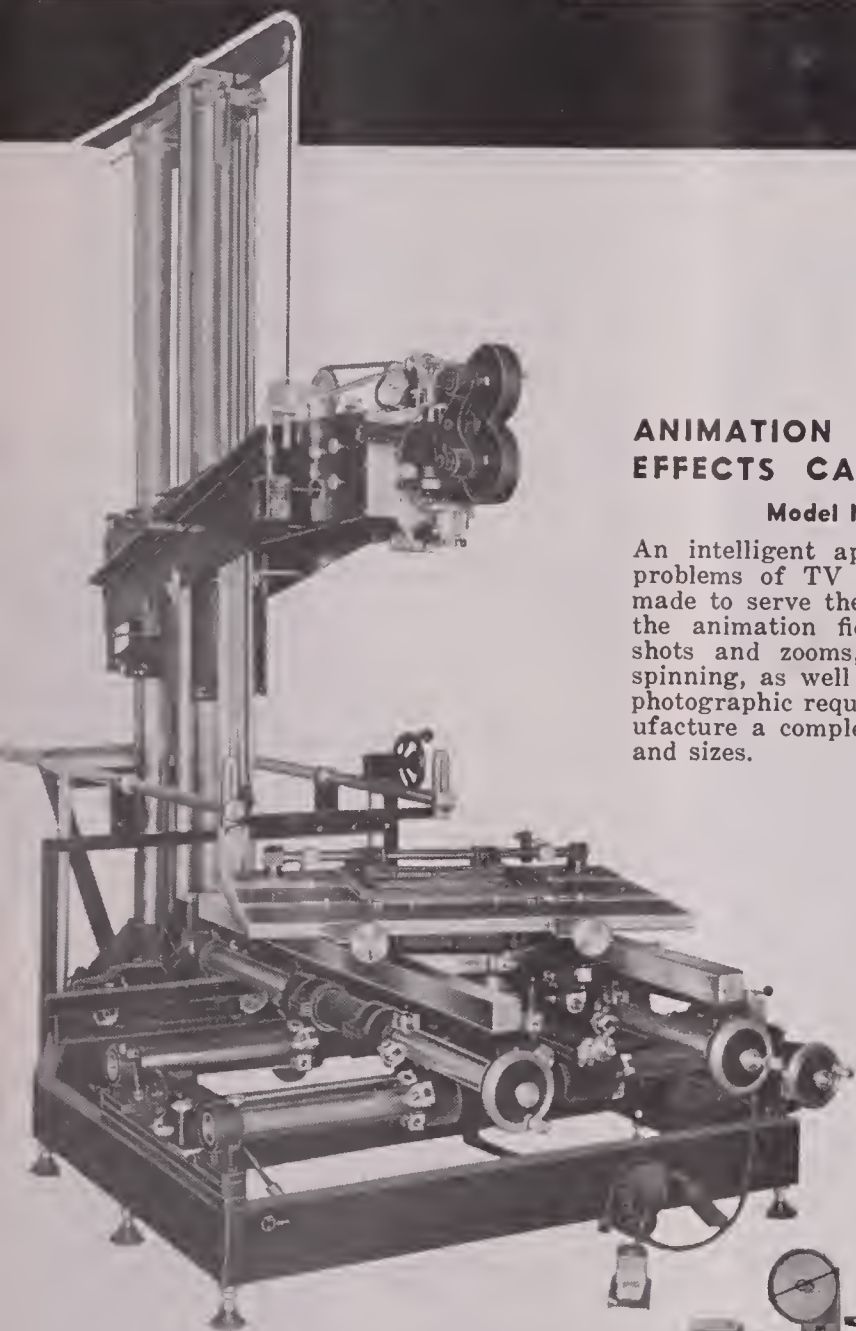
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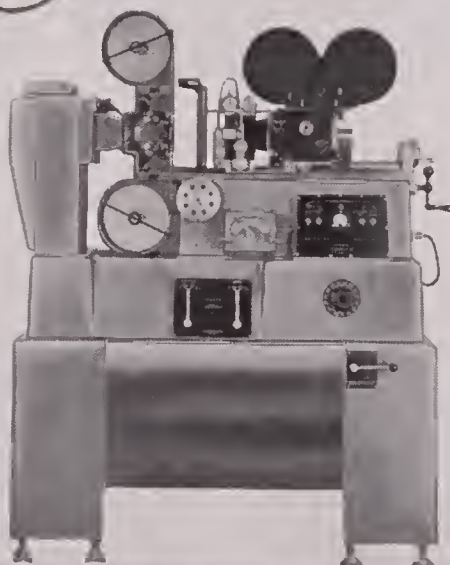
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WHAT'S NEW?

(Continued from Page 312)

and complete film protection for still projection. The machine is said to project a brighter picture on the screen than any other make of projector with a 500-watt lamp. There has been no increase in the list price, which is still \$179.95, including case.

Lighting Equipment Rentals — New lighting equipment purchased recently by Jack Frost, Detroit, Mich., will supply the growing demand for company's well-known rental service to major and independent film producers, both commercial and theatrical. With the addition of a new trailer-mounted 650 ampere generator, a quantity of incandescent spotlights ranging from 150 to 10,000 watts, and portable carbon arcs of various high intensities, the Frost organization now is in a position to meet the needs of film producers everywhere.

Detailed information about the Frost rental service is available by writing Jack Frost, Dept. J, 234 Piquette Ave., Detroit 2, Michigan.

Filters For Ansco Color Film — Ansco, Binghamton, New York, announces a series of new color film filters for motion picture cameras using No. 4 size



lens attachments. Filters are available in 4 different color densities: Conversion #10 and #11; UV-15 and UV-16. Filters are of the optical glass "Sandwich" type, fitted in spun aluminum mounts.

Booklet For Picture-making Vacationers — Eastman Kodak Company, Rochester, N. Y., announces a new 64-page booklet "Vacation With Your Color Camera," which provides the amateur still and movie maker with abundant data.

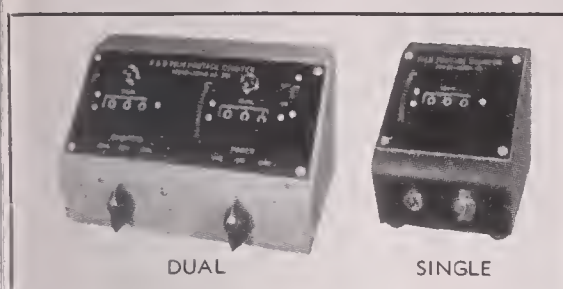
F&B

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FOR MOTION PICTURE & TV FILM PRODUCTION

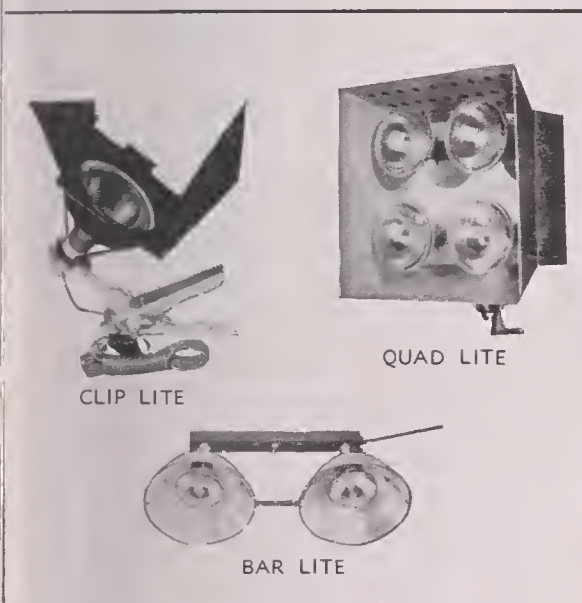
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F & B Film Footage Counter



- ★ DUAL model counts 16mm and 35mm separately or together.
 - ★ Two switch positions—SYNC for synchronous interlock with projector, recorder, dubber, etc.; LINE for manual control.
 - ★ Special built-in plug-in receptacle for accessory equipment.
 - ★ High torque sync motors with nylon gears and special lubricants for quiet, smooth drive.
 - ★ Accessories will include interlocking time counter (minutes and seconds) and reading light.
 - ★ All counters are resettable.
 - ★ 110-V, 60 cycle, or to special order.
- DUAL MODEL\$150.00
SINGLE MODEL 75.00
(specify 16mm or 35mm)

F & B Custom Built Lights



F & B QUAD-LITE

Holds 4 lamps, 4 indiv. switches; strong, lite-weight aluminum construction. Ventilated, tilting yoke, 25-ft. #14 cable with Hubbell plug. Fits B-M stand. Very rugged and portable. Can be used with Calartran converters\$45.00
Carrying case—hold 2 Quads and 2 stands (fibre)\$25.00

F & B BAR-LITE

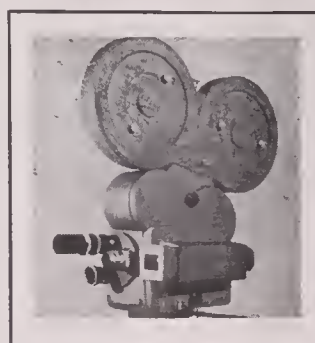
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★ Stops static attraction of dust and dirt to film surface.

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ECCO 1500 Speedrol Applicator — Most practical film cleaning unit. Saves time, fluid, labor, money.
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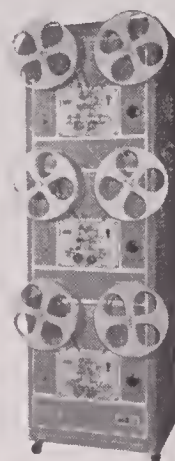
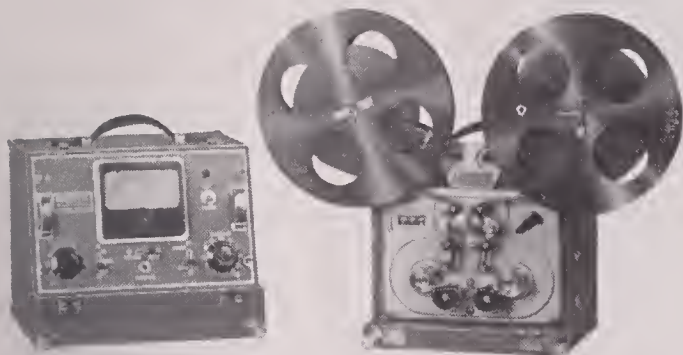
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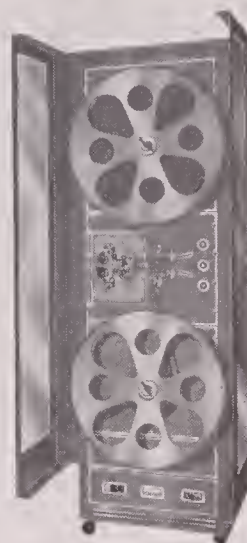
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ROCKY MARCIANO'S hand is raised in victory following sudden knockout of Walcott, bringing filming of bout to abrupt halt. One of the two Stereo-Cine cameras which recorded fight is shown in circle. Above camera is plywood and sponge rubber panel to protect fighters in event one was knocked from ring. Note array of lamps above ring which furnished illumination for photography. (U-P photo.)

Filming The Marciano-Walcott Bout In 3-D

By JOHN W. BOYLE, A.S.C.

ONE OF THE SHORTEST 3-D film productions on record, perhaps, is the motion picture we made of the recent Marciano-Walcott fight in Chicago. Even though the action was short and the filming did not become the big project for which we had prepared, nevertheless it entailed just as much planning and also as much work as would

have been required had the fight gone the scheduled fifteen rounds.

The first title-fight record ever filmed in 3-D, it was conceived and produced by Nathan Halpern and his associates, following the success of earlier activities in this field when they televised a previous Marciano-Walcott fray via closed-circuit TV to a nation-wide chain

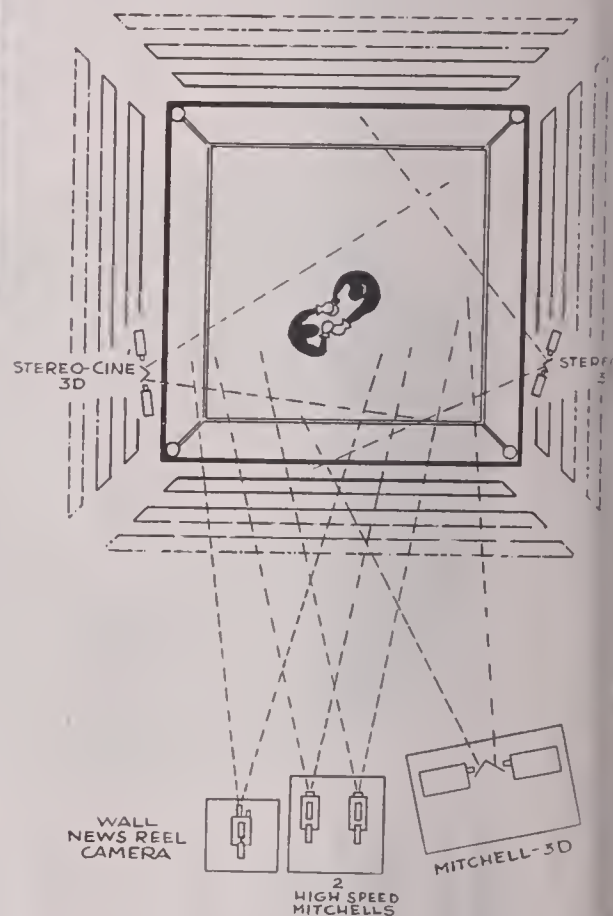


DIAGRAM shows location of various camera units in relation to ring in Chicago Stadium. Stereo-Cine 3-D cameras at either side of ring recorded action close up; the Mitchell 3-D camera, at a distance of 60 ft. Two regular Mitchells filmed action in slow-motion, while Wall newsreel camera recorded master track.



MITCHELL 3-D camera covered bout from vantage point above one of aisle-tunnels in stadium. John Boyle, ASC, (with meter cord suspended from neck) directed the photography.



TWO MITCHELL cameras (foreground) recorded action at 72 fps. Third camera (rear) is Wall single-system which recorded master sound track as aid to editing. (United Press photo.)



ONE OF two Stereo-Cine 3-D cameras which filmed bout close up from ringside. Viewing the operation is Raphael G. Wolff (with glasses president of Stereo-Cine Corporation.

Weeks before the initial event, we took our Stereo-Cine 3-D cameras and crews first to Holland, Michigan, and later to Chicago where we shot intimate action scenes in closeup of the contenders in training. This footage later became the prologue to the scenes of the big fight, which culminated in the surprise first-round knockout of Walcott.

Because bad weather prevailed while we were in Holland and later in Chicago, we never were able to get any interior shots of training action. Thus we had to devise some novel action staged indoors in the gyms—something that would have definite 3-D punch pictorially. One of the interesting things we did was to mount a large panel of shatterproof glass in a wooden frame set up before the camera. The glass was cushioned in the frame with sponge rubber so that it would resist cracking in the event it was struck a hard, direct blow.

With this glass immediately before the lens, we filmed Marciano in closeups as he demonstrated his mighty rights and lefts aimed directly at the lens. Finally he moved in too close, and a heavy blow cracked the glass. Fortunately, we already had more than enough footage of this action.

Preparing to shoot the title bout in Chicago Stadium posed a number of problems, few if any which had ever been encountered before by movie camera crews. Because the Stadium is used almost daily for one type attraction or another, such as ice shows, basketball games, etc., it was not available to either the fight management or ourselves until the very day of the title bout. Thus, instead of being able to walk into the stadium days ahead of the event and survey the photographic situation, we couldn't make a move until the very day of the fight.

At 9:00 A.M. Friday morning the Stadium was opened and construction

(Continued on Page 349)



STEREO-CINE 3-D camera setup used in shooting pre-bout activities at training quarters in Holland, Michigan. In foreground (left) is John Boyle, ASC, and Les Winik, producers' aide.

Single-film, Single-projector 3-D

System recently demonstrated to exhibitors provides stereo pictures in color from a single black-and-white film when screened with a single projector.

By NATHAN COHEN

Executive Editor, BOXOFFICE

THE SINGLE-FILM, single-projector 3-D color process developed by R. E. Schenstad was given its first public demonstration in Davenport, Iowa, last month before a group of local exhibitors and projectionists and friends of the inventor and the president of Stereocolor, Inc., Col. B. J. Palmer.

Schenstad has accomplished what he said his process will do: (1) provide stereo motion pictures taken by a single camera; (2) a single 3-D black-and-white film which projects the images in color; and (3) a single-projector 3-D mechanism.

The difficulty with the process at the moment is that it is not compatible with projection equipment universally in use. In an industry seeking standardization, this presents quite a problem.

The trouble has been that Schenstad and his associates, understandably desiring to protect their process, have been working without the advice of individuals possessing practical projec-

tion knowledge. Schenstad believes that it may be possible to make the changes necessary to make the process compatible. To do this, the inventor undoubtedly will have to work more closely with industry experts who can advise him and his associates on projection standards. Stereocolor, Inc., now has four patents on the process.

The projector which Schenstad uses consists of two standard arc lights mounted behind his special filmhead which includes two principal lenses and two auxiliary lenses, lined vertically. Four synchronized color wheels have been placed in front of the lenses, and over each lens is a polarizing lens.

Schenstad, an inventive genius who first tried to sell his process to the industry 14 years ago, built his projector in the last couple of weeks, taking parts that he needed from two standard projectors. All of his equipment is of the "homemade" variety, but there is no

(Continued on Page 352)



INVENTOR R. E. Schenstad (R) discusses his recently perfected single-film, single-projector 3-D system with Col. B. J. Palmer, president of Stereocolor, Inc. Through the projection booth porthole is seen the multiple film head required by the system, which has four lenses covered by color wheels and Polaroid filters. (Photo courtesy BOXOFFICE.)

3-D Television

Three-dimension television currently being developed for industrial and broadcasting applications; will make possible telecasting of 3-D motion picture films.

TELEVISION, which is generally credited with having forced the motion picture industry into 3-D film making, now will compete with movies in this direction. For the past several months engineers of major TV networks as well as some independents have been experimenting with stereo TV systems. *Tele-Tech*, business magazine of the electronics industry, in its May, 1953, issue, describes three systems, one or all of which it is predicted will debut nationally before long.

If successful, stereo TV will tend to further solidify the position of films in television; major studio 3-D film productions will become potential TV program material, and impetus will be given production of 3-D films especially for television.

Reports *Tele-Tech*:

"The big rush into 3-D films has been stimulated to some extent by the inroads made by TV in attracting the public's entertainment attention. In what has been described as a counter-attack, several TV interests are developing means for getting 3-D on the TV picture screen.

"RCA and Dumont Labs. are among the large TV firms who have developed Stereo TV for medical and industrial use. A double TV camera is employed to produce two images on two separate kinescopes. (See diagram.) These are polarized in mutually perpendicular planes and superimposed optically by a semi-reflecting mirror. When viewed through Polaroid spectacles, the double image produces a stereo picture.

"In TV broadcasting, American Television, Inc., under the direction of U. A. Sanabria, has come out with a stereo

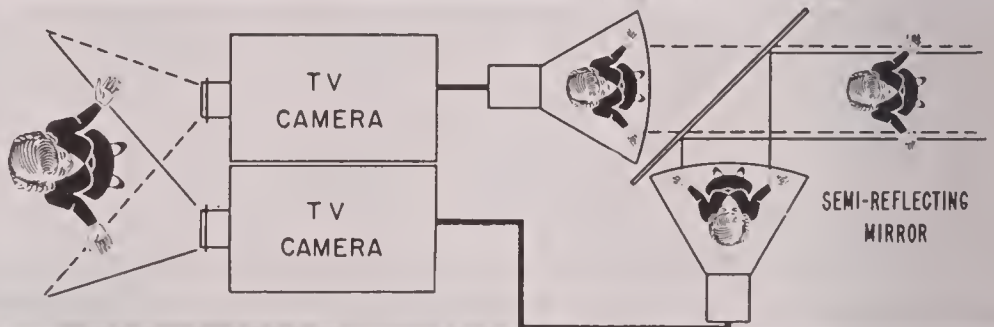
TV system which requires a "synchronous lorgnette" similar to the shutter plan used in early 3-D movies. The cylindrical viewing device mounted on a stand contains a motor and rotating shutters for each eye that open and close 15 times per second to match the frame rate. At this speed, flicker is encountered. At the studio, an electronic switch alternately selects the outputs of two adjacent TV cameras. More work is required on this system, but the basic idea appears promising.

"An extremely simple stereo TV technique was recently introduced on KSL-TV, Salt Lake City, by a photographer who arranged to have his pair of stereoscopic photos picked up by the regular studio TV camera. In their homes, viewers were told to look at the nearly similar side-by-side pictures through two mailing tubes (one for each eye), or to arrange a cardboard separator so that each eye saw only its own side of the screen. About 50% of the viewers were able to obtain satisfactory 3-D effects. Some were able to see stereoscopically even without tubes by paralleling their eyes with distant focus.

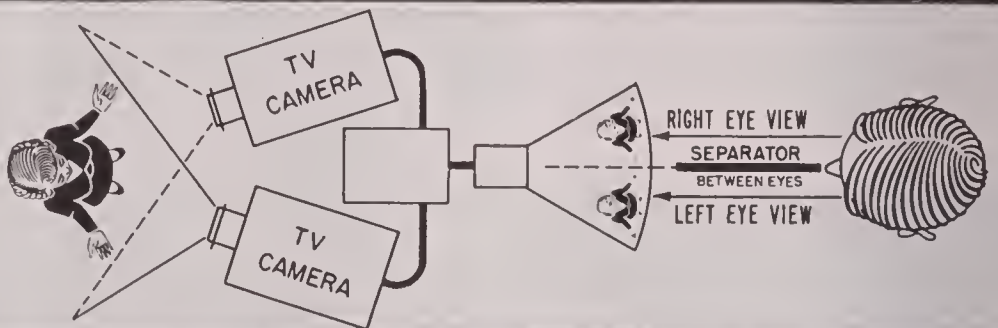
"A variation of this separator method for industrial use employs two adjacent TV cameras. Simultaneously, each

(Continued on Page 340)

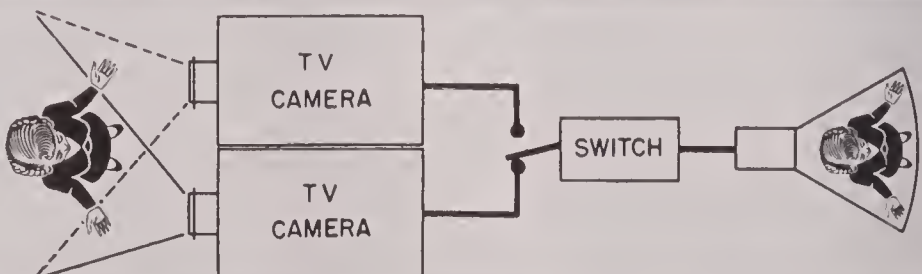
STEREO TV (RCA & DuMont)
Polarized glasses for viewing
Uses: 2 TV cameras
2 polarized picture tubes
1 semi-reflecting mirror



SPLIT IMAGE TV
Opaque separator for viewing
Uses: 2 TV cameras
1 picture tube



SYNCHRONIZED SHUTTER TV (American TV)
Rotating shutter viewer
Uses: 2 TV cameras
1 picture tube
1 electronic switch in sync with viewer



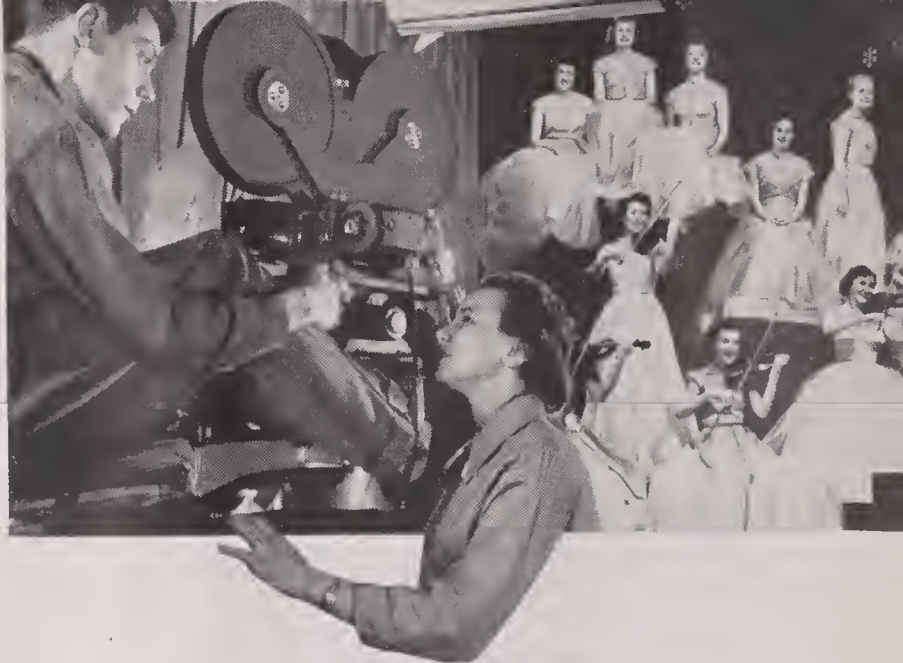
HOW THREE-DIMENSIONAL pictures are achieved in television is shown in above diagrams. Dual cameras pick up the image, but each

method employs a different plan for viewing to gain the 3-D effect, as explained in accompanying text. (Illustration courtesy Tele-Tech.)



MUSIC STRANGELY SWEET FROM MAINE TO TEXAS

A glorious American cultural accomplishment is the Columbus Boychoir, which sings to packed houses in hundreds of cities and towns throughout the land. "Movies, records and radio have brought our story to the public thousands of times," says Founder-Director Herbert Huffman. "Now we want a record of our own, so we bought the finest camera, the Maurer '16'."



HEAVENLY HARMONIES IN SIGHT AND SOUND . . .

Katherine Stenholm, Director, and Robert Craig, Chief Camera-man, Bob Jones University Film Department, find the Maurer "16" ideal for their highly professional needs.

"We find the Maurer view-finder and infallible critical focus, perfect for both delicate close-ups and elaborate long shots," say these world-renowned producers of sacred musical films.

That is why professional movie makers choose the Maurer "16."



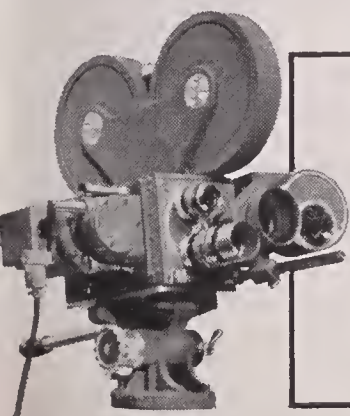
THE MAURER 16mm TAKES THE HIGH ROAD, TOO!

It's a high road to Scotland for a commercial documentary...high in time and expenses. Results must be perfect! So Ken Richter, filming "The Romance of Silver Design" for Reed and Barton, uses the Maurer "16"...as you'd expect. Professionals everywhere use the camera designed for professional work. Study the unique features of the Maurer "16."



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Something special in the way of a camera for recording impact and destruction by a jet fighter's weapons, is the Maurer P-2 illustrated. The P-2 meets specifications of the Photographic Reconnaissance Laboratory of the Air Research and Development Command—yet is only one-third the weight of any previous type camera designed for this function.



THE MAURER 16MM., designed specifically for professional use, equipped with precision high-power focusing and view-finder. Standard equipment includes: 235° dissolving shutter, automatic fade control, view finder, sunshade and filter holder, one 400-foot gear-driven film magazine, a 60-cycle 115-volt synchronous motor, one 8-frame handcrank, power cable and a lightweight carrying case.

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**16mm
maurer**

maurer means *finer* motion pictures!



PEV MARLEY, ASC, (right) used Eastman color negative in photographing Warner Brothers' 3-D Warner-Color feature, "House of Wax."

Eastman Negative-Positive Color Films For Motion Pictures

By FREDERICK FOSTER

IN RECENT YEARS, a number of negative and positive color films of the integral tripack type have been made available to the motion picture industry. Their use has been greatly encouraged by the flexibility offered by the negative-positive system, which enables a studio to produce color films with the same ease it does black-and-white. This has been especially true more recently in the production of many three-dimensional films, where 3-D cameras taking single film strips are employed instead of Technicolor 3-strip cameras.

In this respect, the new Eastman color films—three in all: color negative, color positive, and color internegative—have had wide use, and now that the manufacturer has increased the output of these films, their use will become even more general. At present, nearly every major studio in Hollywood is using Eastman color negative in one way or another. Some are using the entire color series. Examples are Warner Brothers, whose Warner-Color system employs Eastman negative and positive

film, and Republic Studios whose Trucolor process also employs the full range of Eastman color films. Warner's "House of Wax" is an outstanding ex-

ample of all-Eastman color film use. Twentieth Century-Fox studio is using Eastman color negative in its cameras in the production of CinemaScope films. Columbia Studio uses Eastman color negative in shooting all its 3-D films, with the release prints being produced by Technicolor Corporation.

In all, Eastman Kodak now offers four different film materials which can be used in color productions, such as those outlined above, or which can be used in conjunction with existing commercial color motion picture production processes. Three of these materials represent improvements over earlier Eastman color films which were used in the last few years for a number of motion picture productions.

The most acceptable systems for color motion picture production require the use of intermediate steps in order to include special effects and to provide protection masters. A number of systems are possible when working from a color original, but the preferred system appears to be one employing black-and-white separation positives and an integral tripack-type color internegative. For this, Eastman Kodak has provided special film stocks.

The key film, of course is the negative. The new Eastman Color Negative Film, Type 5248, is balanced for use with tungsten illumination at 3200°K, and requires no filters over lights or lens. It can also be used with daylight or carbon-arc illumination when a Kodak Wratten filter No. 85 is used on the camera lens. The speed is high enough to allow sufficient exposure at a key-light level of about 200 footcandles at F/2.0. It has a tungsten exposure index of about 24, and about 16 for daylight. These are only average specifications and, in many cases, satisfactory

Number of foot-candles required	f/2.3	f/2.8	f/3.5	f/4.0	f/5.6
Lens Apertures	309	400	600	890	1600

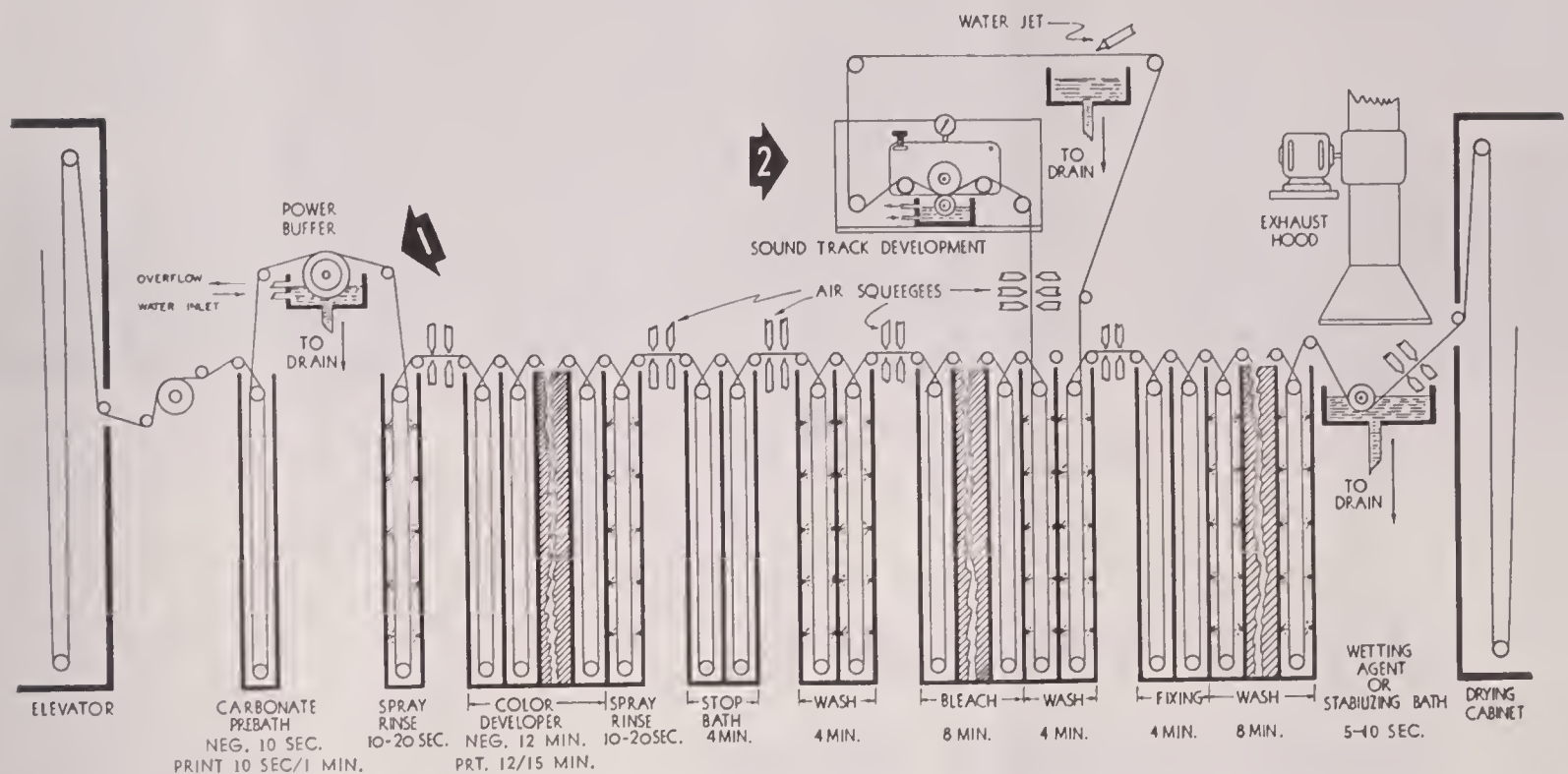
INCIDENT light table for tungsten illumination for Eastman color negative safety film #5248.

Light Source	Light Source* Filter Required	Camera Filter* Required
3200K Tungsten lamps or "CP" lamps (approx. 3350K)	None	None
M-R Type 170 150 Amp. H.I. Arc	Straw-colored gelatin filter such as Brigham Y-1	Kodak Wratten No. 85
M-R Type 40 40 Amp Duarc	Florentine Glass	Kodak Wratten No. 85
Daylight (Sunlight Plus some Skylight)	None	Kodak Wratten No. 85

*These are approximate corrections only, since final color balancing will be done in printing.

FILTERS recommended for use with Eastman color negative #5248 when exposed under light sources of various types.

SCHEMATIC OF PROCESSING MACHINE FOR EASTMAN COLOR FILMS



ABOVE DIAGRAM illustrates procedure for developing Eastman color films, both negative and positive. Arrows 1 and 2 point to two im-

portant intermediate steps in the procedure—buffer which removes anti-halation backing, and sound track developer.

exposure can be obtained at even lower lighting levels.

This new film has somewhat lower graininess than the earlier Eastman color negative, and improvements have also been made in the colored couplers to allow better rendition of blue subjects. This results in a lower blue density for the processed film, which is advantageous in printing.

The new Eastman color negative now makes it possible for producers of 35mm films in many fields to make pictures in color using any type of 35mm camera. It is expected that soon we shall see newsreels in color, and more and more explorers and travel and documentary film makers are certain to turn to color, using Eastman color negative in portable Eyemo, Camerette, and Ariflex cameras.

The new Eastman Color Print Film, Type 5382 (35mm) and Type 7382 (16mm) is similar to the earlier product, but improvements have been made to provide better image sharpness. A new magenta coupler is also incorporated in this film which gives better rendition of red hues than was the case with the earlier film.

Printing of the color negative onto Color Print Film can be done with either subtractive type printers employing color compensating filters, or with additive-type printers which utilize three filtered light beams (obtained from

three separate sources or from a single source with beam-splitters). In either case, the printer must be designed to permit adjustment of both the intensity and color balance of the light for printing each scene. Additive-type printers have been found to give the best results from the standpoint of good color contrast and saturation.

The sound track can be printed from conventional black-and-white sound negatives prepared in the usual way. Either variable density or variable width tracks may be used. It has been found that better frequency response is obtained if the sound track exposure is confined to the two top emulsion layers of the print film instead of to all three layers.

When effects are to be included in the production, black-and-white separation negatives are made through appropriate filters on Eastman Panchromatic Separation Film, Type 5216, using registering-type printer. Preparation of such separations also provides protection against damage to the valuable color original or against possible fading of the dyes. This step also permits slight corrections for contrast and density variations which have occurred in the exposure and/or processing of the color negative original. The separation positives are processed in a standard black-and-white negative developer by conventional methods.

(Continued on Page 348)

POWER BUFFER FOR BACKING REMOVAL

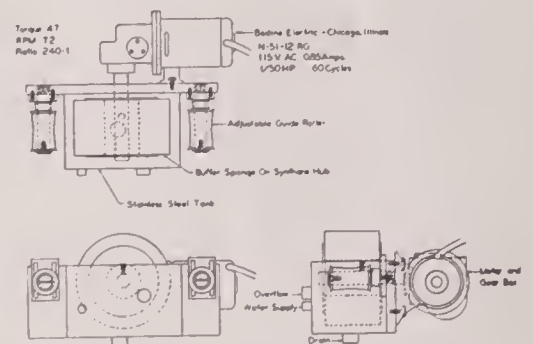
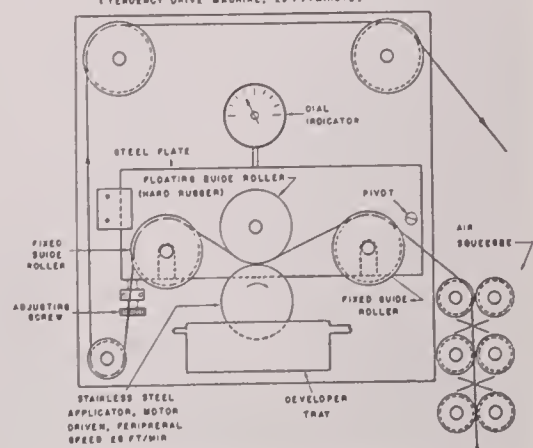


DIAGRAM showing details of backing remover, which is part of processing machine assembly (arrow 1 above.)

EDGE APPLICATOR FOR EASTMAN COLOR PRINT FILM SOUND DEVELOPER

(TENDENCY DRIVE MACHINE, 85 FT/MINUTE)



SHOWING detail of edge applicator for developing sound tracks on Eastman color negative (arrow 2 above.)



ACOUSTIC treatment of a typical small projection room, which minimizes the faults of very small enclosures used for this purpose.

VIEW TOWARD rear of some room. Note that greater part of rear wall surface is covered with plywood diffusing elements that receive and properly treat sound energy.

REAR portion of ceiling, showing 4 x 12 foot plywood panel. Better results would be obtained here with a curved panel to minimize sound reflections.
—Photos by Aram Peter Margosian

Acoustic Treatment For Small Projection Rooms

By F. ALTON EVERETT
Moody Institute of Science

THERE IS MUCH information in the literature on the acoustic treatment of large auditoriums, but there is very little that would serve as a guide in the acoustic design or treatment of small enclosures. In recent years, however, research has disclosed means of approach to this problem. The "small" room in the textbooks and acoustic journals usu-

ally refers to rooms having volumes from 20,000 to 50,000 cubic feet. In this discussion we shall focus our attention on the very small rooms having volumes of only a few thousand cubic feet.

The acoustic correction of a small projection room of 2880 cubic feet (23'-1" x 9'-10" x 12'-9") will be de-

scribed and the underlying reasons discussed briefly.

The great difficulty in acoustically treating the very small room is associated with the so-called "normal modes" of the room. In the lower frequency range of the spectrum the wave-lengths are long and the combination of the small dimensions of the room and the long wave lengths of the sound gives rise to much of the trouble. Every pair of walls, for example, are separated a half wave-length for some particular low frequency and at this frequency this mode will be in resonance resulting in great reinforcement of the sound. While this effect may be considered desirable by the bathroom tenor, it will result in poor listening conditions in the projection room.

(Continued on Page 352)



NOTE USE of inclined diffusing and absorbing plywood panels on lower areas of rear walls of projection room.

POLYCYLINDRICAL diffuser panels up front fill dual role of absorbing low-frequency energy and diffusing reflected sound.

METHOD of mounting 16mm sound projector in adjoining room, which serves as projection booth. No gloss is used in the port.

EASTMAN

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FILMS

W. J. GERMAN, INC.

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Vistarama—Wide-Screen System For 16mm Movies

Will give "new look" to industrial and educational films.

By HERB A. LIGHTMAN

A MOVE WHICH will enable producers and exhibitors of 16mm films to keep pace with the trend in theatrical pictures for wide-screen presentation has been announced by Vistarama Corporation, Beverly Hills, whose president Carl Dudley is well known as one of the country's leading producers of 16mm industrial and documentary motion pictures.



SHOOTING on industrial film in 16mm Vistarama is no different than filming normally. A special viewfinder shows the full area taken in by the Vistarama lens. The wider aspect ratio will enable cinematographers to develop more dramatic compositions.

Vistarama is a wide-screen system of motion picture photography and projection employing an anamorphoscope "squeeze" lens by which images twice normal width are compressed onto a normal frame of 16mm or 35mm negative. The system is essentially the same as 20th Century-Fox's CinemaScope, except that the one lens may be used for both taking and projecting pictures. In projection, the picture is spread on a panoramic screen, and has an aspect ratio of 2.66 to 1.

It is not hard to imagine the tremendous impact which this will bring to the 16mm screen. Industrial, training, promotional, educational and even home movie films now may be photographed and screened with the "new look" that is having such tremendous audience acceptance in the nation's theatres.

Producers of industrial and business films have a powerful new tool in Vistarama, for they now can give their clients motion pictures having treble the visual impact of standard format films. Already screen manufacturers are in production on beaded and aluminum surfaced screens in the wide, horizontal format necessary for showing Vistarama pictures. These screens can readily be set up in school auditoriums, convention halls, little theatres, and in the home. Permanent wide-screen installations are unnecessary for 16mm Vistarama panoramic movies.

Vistarama lenses are easily mounted on any 16mm camera or projector, professional or amateur, as well as those in 35mm. Similar lenses will soon be available for 8mm movie makers.

Vistarama officials emphasize that their system is completely compatible with CinemaScope, and Vistarama films in 35mm can be projected with the same lens and on the

(Continued on Page 342)



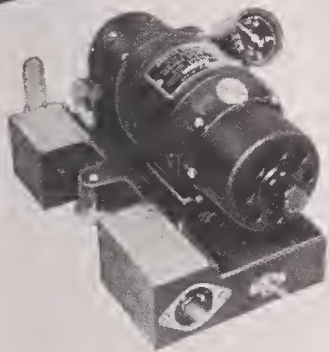
ABOVE are frame enlargements from a 35mm Vistarama color print, which show (left) Carl Dudley mounting Vistarama lens on a 16mm projector, and (at right) supervising erection of special curved screen



for Vistarama presentation. Distortion of image is result of "squeeze" action of the Vistarama lens. Image is expanded in projection and appears normal on wide screen having aspect ratio of 2.66 to 1.

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or on Location...*

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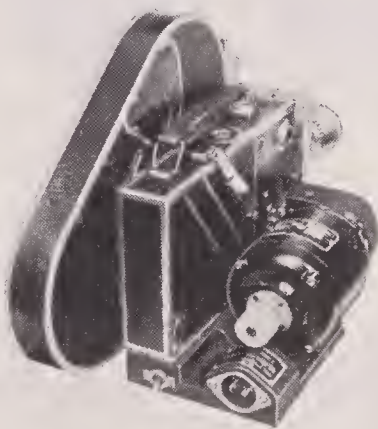
VARIABLE SPEED MOTOR—110 Volt AC/DC—
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Motor drive your Cine Special with confidence! Tachometer is mounted in clear view of operator. Calibrated from 16 to 64 frames per second. Definite RED marking for 24 fps. Electrical governor adjusts speeds. Steady operation at all speeds. No adapters needed. Motor coupling attaches to camera and couples to motor. Spring steel drive arm shears if film jam occurs. Easily replaced.

SYNCHRONOUS MOTOR DRIVE—110 Volt AC
—Single phase, 60 Cycle.

Runs in perfect synchronization with either 16mm or 35mm Sound Recorders. Mounting platform permits removal of magazine while camera remains mounted on motor. Spring steel drive fin coupling prevents damage if film jam occurs.

Knurled knob on armature permits rotating for threading. "On-Off" switch in base. Platform base threaded for 1/4" or 3/8" tripod tie-down screw. Rubber covered power cable with plugs included.



HEAD ILLUSTRATED CONTAINS ADJUSTABLE CAMERA TIE-DOWN SCREW
FOR LOCATING CENTER OF GRAVITY. THIS FEATURE IS OPTIONAL.

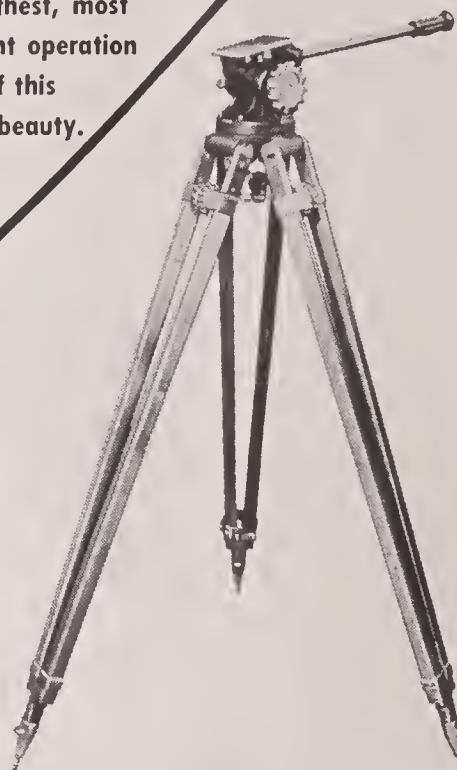


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STOP CALIBRATION of all type lenses, any focal length.

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A Simplified Method For Continuous Double-System Photography With Two Cameras

By RICHARD F. DUBBE and HARRY WEBB
University of Minnesota

OUR BASIC PROBLEM was to photograph without interruption motion pictures with sound of continuous events, such as speeches, plays, and athletic events, and at the same time obtain synchronized sound with the flexibility, and having all the quality, of the best double-system recording methods.

The best problem in this case was to film and record the annual report of the president of the University of Minnesota, Dr. J. L. Morrill. Most readers know how easily a speech or an oral report can lose its feeling of authenticity and its general impact if subjected to interruptions caused by shot breakdowns. We were anxious to avoid this, and at the same time to film continuously as well as economically.

Now the University of Minnesota, like other colleges having small film production units, does not boast the luxury of a half-dozen sound cameras that might be used in filming an event of this kind. It had to be done with the

While it is possible in some cases to use the sound track of the single-system camera as the master as well, we elected to make the additional magnetic track to insure optimum sound quality. Because the Stencil-Hoffman recorder oper-

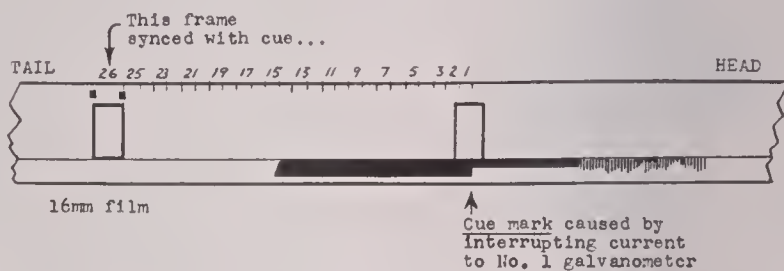


FIG. 2—Pattern of the cue mark effected by the switching operation is shown here, as well as its relationship to the respective frame of the picture.

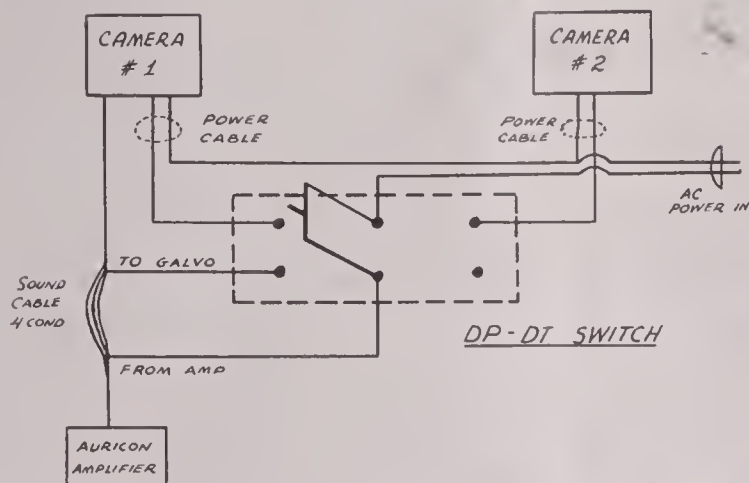


FIG. 1—Switching arrangements between the dual 16mm cameras employed in authors' system. Camera No. 1 is a single-system Auricon; No. 2 is a double-system Maurer. DP-DT switch transfers motor current from one camera to the other, at same time interrupts flow of current to galvanometer to effect cue mark on sound track.

equipment at hand—an Auricon single-system camera and a Maurer. The use of two cameras would give us more variety in camera angles and at the same time permit us the continuous recording of picture and sound desired.

Normally, it is necessary to indicate on the film the point at which each camera comes into operation, so that film and sound track can be matched up in the editing. For this clap sticks are generally employed to simultaneously mark both picture and sound. However, when one of the cameras can record both sound and picture, as in the case with a single-system Auricon, it becomes possible to synchronize the takes of both cameras by employing a simple and inexpensive switching device, and using the sound track of the single-system camera as a cue track or editing guide. The master sound track, or sound master as we call it, is recorded separately—in our case with a Stencil-Hoffman magnetic film recorder.

ated at the same speed as the camera, this facilitated editing, since the sound master could be run through the film synchronizers along with the single-system film.

In working out our method for two-camera continuous recording, our desire was to avoid making any physical changes in either of the cameras. It occurred to us that the best system would develop from a method of actuating the galvanometer of the Auricon when the sound camera—the Maurer—was switched on. We saw that by using a simple switch, we could stop the modulation on the cue track and at the time interrupt the ground noise reduction circuit. The switching arrangement, outlined in Fig. 1, was rigged up in a very short time, and the equipment put through preliminary tests. The results were all we could hope for. Here's how it works:

To effect synchronization of the films made by the two cameras, we record a visible cue on the single-system sound track of the Auricon camera film. This enables us to tell the exact point at which camera No. 2 is started and stopped when the two cameras operate in relays to produce a continuous sound and picture record. A director using the

(Continued on Page 348)

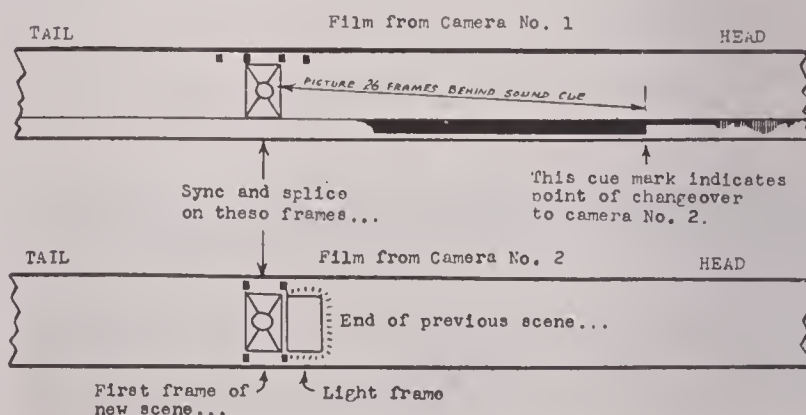


FIG. 3—How scenes made by both cameras are synced in the editing process. The visible cue mark on the single-system track indicates point of changeover to camera No. 2.

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CANADA



NEWEST STEREO attachments for making and projecting 3-D 16mm movies are those of Elgeet Optical Company. Camera unit (right) which records dual images on a single 16mm frame, may be used on any "C" mount 16mm camera, the projector unit on any standard 16mm projector.

3-D Film Festival Open To Both Amateurs And 'Pros'

Many 16mm movie makers rapidly turning to making movies in 3-D, now that simple stereo attachments are on the market. Festival entries in production.

By ARTHUR GAVIN

WHEN THE AMERICAN CINEMATOPHOTOGRAPHER decided to hold the first 16mm 3-D Film Festival in Hollywood early next January, it was agreed that the event should be open to professional as well as amateur 16mm stereo motion pictures. Unlike in the amateur film contests which American Cinematographer has conducted in the past, films entered in the 3-D Festival will not compete with one another. Rather the Festival's purpose is to showcase what can be achieved in making 3-D movies in 16mm.

Given the same equipment, it is likely that amateurs will turn out stereo films that are as interesting and probably the technical equal of many 16mm

professional stereo productions. This is because the equipment used will invariably be the same—Bolex, Nord, or Elgeet. It is in the approach, and in the imaginative treatment given a film that each entrant, amateur or pro, can distinguish his work.

During the pre-festival screenings, the various film entries will be classified according to origin, i.e., amateur, semi-professional, or professional.

A film in the *amateur* class is defined as one made by a non-professional without compensation, and where such film or prints of same have not subsequently been sold.

Semi-professional films are those made by film makers who have done

some professional cinematography or film production.

A *professional* class film is one made by an established professional film producer or cinematographer for a client, or a film that has been sold subsequent to its production and under sponsorship at the time of entry.

One of the important provisions of the Festival is that only those 3-D films made on single film strips and requiring but a single projector for screening shall be acceptable. Obviously this includes films made by such stereo devices as are available to the amateur film maker, i.e., Bolex, Nord and Elgeet—all of which employ a dual image producing attachment for the camera and a similar attachment for use on the projector.

Now there have been some good 16mm stereo films made with other equipment, such as home-made stereo devices (coupled cameras) and by some professional equipment such as that developed by Friend Baker, Hollywood 3-D equipment engineer and designer of the Natural-Vision 3-D camera used in the studios. But unless these films can be screened at the Festival with the *same projector* that will be used in putting the other films on the screen, they cannot be accepted. Stereo films made by Baker's method can be shown with a single projector, when a Baker image erecting and transmission device is mounted before it.

As for special 3-D systems, other than those already mentioned, obviously it is impractical for the Festival committee to undertake the shipment to and from Hollywood of any special equipment necessary for screening films made with such systems.

Additional requirements for those who plan to enter films in the Festival are that all entries shall be completely-edited films. That is, they should have reasonable continuity (not be merely an assemblage of random shots, although well photographed novelty series of 3-D trick sequences will be accepted in lieu of a strictly continuity film); films should have at least a main and an end title; films may have sound—either recorded on the same film or separately on synchronized magnetic tape. Sound on wire or records will not be considered. Sound or silent, all films will receive the same consideration. The Festival committee will make no distinction between black-and-white and color entries; both will receive equal consideration.

(Continued on Page 340)



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That's because this modern panchromatic film combines *really* fine grain with inherently brilliant gradation to produce brighter, sharper screen images. And, with its high exposure indexes of 40 daylight and 32 tungsten, you'll find Ansco Hypan a good all around film, indoors or out.

You'll be delighted, too, with Hypan's down-to-

earth price that lets you take more fine movies for your money! So be sure to ask your photo dealer for Ansco Hypan Film!

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with Today's**

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A POPULAR technique, where sound is to be recorded with a recorder-projector, such as Bell & Howell's "202," is to screen the edited film and record a pilot track consisting of extempore description of each shot as it appears on the screen. This track, played back later, serves as a guide in preparing the final sound script.

Sound Tracks Need Planning, Too

Magnetic tape now makes sync sound possible for every movie maker. Good sound results call for careful preparation of narration, however.

By JOHN FORBES

SOONER OR LATER sound will be as important to *your* movie making as color film.

Then you will want to know all the answers—be up on all the latest techniques—that apply to this phase of amateur movie making. The advent of magnetic sound recording has had a terrific impact on the amateur's movie hobby. Now for the first time perhaps amateurs are provided with the most practical medium for producing synchro-

nized sound for their films—magnetic stripe and tape.

It seems that always the most impressive, the most serious and entertaining amateur movies have been accompanied by sound in some form. Until recently, discs have been the media mostly employed for recording sound for 8mm and 16mm movies, or for supplying a simple background of music or sound effects. Then, with the development of magnetic wire recorders, the

more ambitious movie amateurs seized upon this medium to provide synchronized sound for their films.

More recently, of course, has come the easier-to-use magnetic tape and tape recorders, and the magnetic recorder-projectors for both 16mm and 8mm; and these have provided the serious amateur with the ultimate means for making sound films, short of optically-recorded sound-on-film.

Naturally, there is more to adding magnetic sound to your films than simply turning on the recorder and speaking into the microphone. Just as the serious amateur plans each film production with meticulous care, so also must he plan his sound, and pursue certain steps in recording and combining it with his picture. Whether the sound is to be recorded on a film that has been sound-stripped (for playback on a recorder-projector) or recorded and played back separately via magnetic tape, the procedure is essentially the same.

The first step is to prepare a script containing the text of the narration along with any music and sound effects. J. W. Bakke, a member of the Amateur Movie Society of Milwaukee, recently gave out with some pertinent information in this regard in an article he wrote for "Cine-Crat," monthly club bulletin of the AMSM. Said Bakke:

"A script is your narrative written out and timed against the film. Although a written script sounds like it would involve more effort than you may wish to expend, it will help you in many respects. First it helps eliminate the many small grammatical errors that all of us so often make. Duplication of words and expressions are thus eliminated, too. Until you see your narrative on paper, you won't realize how often you repeat words and phrases. 'Now we see . . . ' 'Now here's a nice color telephoto shot . . . , ' are some classic examples.

"A written script makes us more conscious of the things we say, such as proper names. When we see our facts and figures laid out on paper before us, we tend to be much more critical; we double-check spelling and the dates and figures used. Of course, the most valuable thing a script does is to establish a 'pattern' for our narration, which will enable us to allot exactly the right number of words to each scene—preferably fewer than we might otherwise.

"The mechanics of preparing such a narrative script are easy. Write out your copy—if possible, type it—double spac-

ing between the lines. This will allow ample room for making alterations and corrections. Triple space between each new scene description so there is a definite break or separation in your narration. This will help you avoid the unpardonable fault of so many amateur narrators—talking continuously. The aim here is to get *balance* into your delivery—just enough of the spoken word to tell what the picture does not reveal on the screen. Always time your narration so that you do not start the next paragraph until its corresponding scene has flashed on the screen.

“After you have your first rough draft of the script prepared, project your picture and read your script as the picture unfolds on the screen. In several instances it is likely that you will find yourself talking long after a scene or sequence described disappears from the screen. This fault can be corrected by shortening the script—lopping off unnecessary words; rewriting for more brevity. This may be hard to do at first, but once you see how it improves your narration, you will always write with brevity in mind thereafter.

“On those long scenes where you have provided awkward pauses, don’t worry too much about them unless they appear too frequently. Occasional pauses are necessary—for you as the narrator, because they afford a moment to catch your breath; and for the audience, too—it tires of hearing a steady flow of

(Continued on Page 336)



FILL IN the breaks between narration with music “bridges” played from records. Add sound effects this way, too.

Why Not Extend Your Horizons?

It may be time for you to change
from a realist to a creative filmer.

By LEO J. HEFFERNAN

EVERY ONCE IN A WHILE, a movie-maker should take stock within himself to see if his film-making activities are in a rut—and if he is not convinced that the quality of his films has been improving steadily, and the scope of his work is not widening appreciably, then he should do something about it.

Everything is wrong with his cine thinking if he grinds out the same old films year after year. “Never any better, never any worse,” is a slogan to be shunned. But how can he set about improving his product?

The trick lies in widening filming horizons; tackling problems which he never thought he could handle when he first started out; and improving his moviemaking techniques in *all* departments. Advanced filers got that way only after they realized that their next film had to be better than the last one—much better. When they try to rest on their laurels, they’re through!

Let’s suppose that, up to now, you have always waited for things to happen before venturing forth with your movie camera. You’ve waited for spring, for fall or winter; you’ve waited for football or baseball seasons; you’ve waited for big parades, and you’ve waited for blossoms and flowers. Then, when the time came, you found that parades are not such hot screen material, that bad weather can ruin the chance to shoot blossoms, or that you didn’t go to a football or a baseball game that season.

Well, it may be time for you to change from a realist to a creative filmer. Extend your horizons and, instead of waiting for things to happen, strike out boldly and *make* them happen for your camera alone. In other words, write out a script which calls for scenes and action which, at the time, exist only in your fancy but which you can set up in locations to which you have access, utilizing actors recruited from among your family and friends. You might wait indefinitely before such a film could be produced strictly on a candid basis.

You may consider that you are the type of filmer who likes scenes to have a casual, unposed look—similar to those which you shoot on a candid basis. Well, there is nothing wrong with the documentary approach. By all

means light your sets and stage the action in such a way that it will have an authentic, raw look. While striving for this on-the-spot appearance, you will find that it is not easier to come by than the slicker, more artistic type of film.

Slick or raw, the important thing is that you will have gotten away from the idea that you are simply a camera waiting for something to pop up all by itself, so you can press the starting button. Instead, you are a director first and a cameraman afterwards, and you’ve been disappointed in the type of screen material which popped up all by itself.

As an example of what a change of technique can do, one day I happened across a well organized neighborhood baseball game. I worked with my movie camera on a candid basis, and nothing happened the way I wanted it to and I ended up with a series of disjointed shots.

The boys settled the matter for me when they became interested in my camera. We promoted a little movie producing company instead of just a baseball game. “Hams” to the last man, the boys delighted in acting out all of the situations I wanted. They swung like a gate, bunted, stole down to second, slid home—all on cue. All I had to do was name it and I could have it, and you never saw such enthusiasm! I broke up the ball game, but I got a lot of fancy footage which jelled into an excellent movie.

Adding an advanced directorial technique to your moviemaking is but one improvement. It will provide much more interesting footage, of course, but undoubtedly you can polish up in other departments, too; in editing and titling, for example. It is here that thinking shows up the most, but it is also gratifying to discover that all of your scenes are “razor sharp” and perfectly exposed. In the editing stage, take a dim view of sub-standard footage and always discard it even if it means that you will have to go out and make some scenes over again.

Don’t let anything stand in the way of your determination to make your next picture better—*much better*—than your last one.

END

Basic Lighting For Indoor Filming

How to key your lighting of interiors to suit the mood of the action and the locale, and properly establish source of the light.

By CHARLES LORING

WHEN WE SHOOT exterior sequences photographic light is provided by the sun, and our task is to simply control the light in an effective manner. But when we move indoors to shoot interior sequences, we are suddenly confronted with the problem of *lighting* and must work with units of artificial illumination.

Aside from providing enough light to expose the emulsion, the function of interior lighting is to bring out the form and detail of the subject matter to best of advantage. For this reason, lighting should be keyed to the mood of the action, to the locale, and to the established source of light. This latter point is very important, since an audience will sense whether or not the main *key* light is coming from the right direction. If, for instance, the long shot of a room should show sunlight streaming in a large window, one would naturally expect the brightest light falling on the subject to be coming from the direction of that window.

For the home movie maker, lighting units may consist simply of ordinary flood bulbs mounted in cardboard or metal reflectors of the "dishpan" variety. But for the advanced amateur or semi-professional moviemaker, there are available more advanced units, each with its own special use in lighting.

First of all there are *floodlights*, composed of bulbs of 1, 2, or 4 brightness, which are screwed into large concave reflectors surfaced either in white or aluminum. These are useful for general set illumination and for the boosting of overall key of a set-up. Used exclusively, they provide a rather harsh quality of light.

Next there is the *broad*, a professional type of diffused floodlight composed of a bulb mounted in a rectangular metal housing with a glass diffusion slide in front. This is an extremely soft type of light, very useful to fill shadows in closeups, or to provide an overall glow in low-key sequences.

Spotlights fall into several categories according to size, the largest being the *senior*, then the *junior*, then *keg*light,

and finally the tiny "Dinky Inky." All of these lights have adjustable beams that can be narrowed down to a small, concentrated spot, or broadened out to a flood effect.

Strip-lights, as the name implies, are composed of a number of bulbs mounted side by side in a metal trough type of reflector. They are useful in illuminating backdrops or artificial back-grounds.

Arc lights, which burn carbons, fall into a special category. They produce a harsh, brilliant light that effectively simulates sunlight or moonlight. Arc lights are generally used only by professional film producers.

No matter what kind of lighting units the filmer has available, it is up to him to make the best possible use of his equipment. Here again, the effect depends not so much upon the kind of equipment as how it is used.

In a discussion of lighting, a few basic terms should be defined so that there will be no misunderstanding of the expressions used.

The term most frequently used is *key light*. This refers to the strongest light in the scene and, as we have pointed out, it is dependent upon the main visible source of illumination. The direction of the *key light* should always remain the same throughout the sequence.

Fill light refers to the illumination used to fill the shadows created by the key light. Its intensity varies according to the degree of dramatic effect desired, but it is always of weaker intensity than the key light.

The term *front lighting* should be self explanatory, since it refers to a key light placed directly in front of the subject. This type of lighting is rather undramatic in closeups and it is better to use a less symmetrical pattern.

Back lighting refers to a light placed at the rear and above the subject, pointing downward. It is effective in creating separation between subject and the key light aimed at the side of the background.

Side lighting (or *cross lighting*) has

the key light aimed at the side of the subject's face, and it is very effective in lighting for character or dramatic effect, since it brings out the lines and contours of the face.

Top lighting is achieved by a light placed directly over the head of the subject, pointing downward. It is a very extreme kind of lighting when used without the proper fill.

Rim lighting refers to light placed directly in back of the subject, but lower than a back light, so that the subject is outlined with a rim of light. This pattern is sometimes very effective when used with other units as fill.

There are variations of these basic patterns, each of which has its own special effect. But the pattern described above are standard set-ups with which the cinematographer begins.

In lighting a closeup, it is necessary to bring out the roundness of the subject's head, and to keep his hair and clothes from blending into the background. This effect is achieved partly by the use of backgrounds with suitable contrast, partly by modeled lighting for depth, as opposed to the flat effect of straightforward lighting.

In using top-light or back-light for separation, however, care must be taken that these lights are not too bright. Otherwise, the hair will have an artificial, burned-up appearance.

A good standard pattern of lighting for closeups is as follows: The key light is placed a bit to one side of the camera, so that it falls on the face in what is known as "three quarter front light." The key light is pointed down toward the subject at about a 35 degree angle, being careful that the nose shadow doesn't extend too far down into the lower lip.

To balance the key illumination, we use a diffused fill light placed at the subject's eye level. This fills in the otherwise harsh shadows about the eyes, nose, and neck. If a back light is used for separation, it should fall on the shadow side of the head.

In lighting a *two-shot* of a man and a woman together, use a diffused fill light on the woman in order to soften and enhance her appearance. But the man should be lit with very little fill and perhaps a cross-light to enhance his masculinity.

Sometimes, instead of using back-light for separation, it is more realistic and effective to light the background behind the shadow side of the face, so that the contour will be effectively silhouetted. Also, a background of interesting shadows, if properly motivated, provide an attractive setting for the face in closeup.

The two most frequently used styles
(Continued on Page 347)



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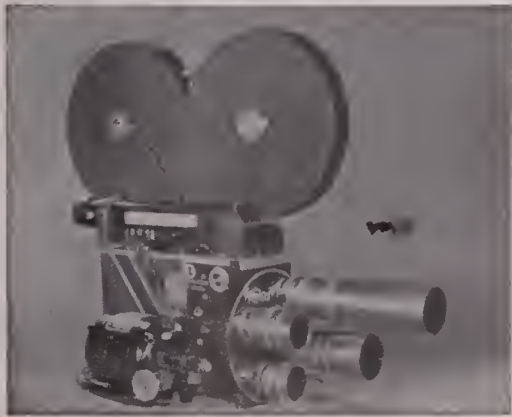
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PLANNING SOUND TRACKS

(Continued from Page 333)

narration. Breaks can often be filled in with music. If you have access to a record turntable, you can fill in the breaks between the narration intervals with what the professionals call 'musical bridges'—short interludes that bridge the various narrative intervals. This technique will give your films a professional touch, although it requires a little experience in order to select music and to cue it properly so it will fit perfectly in the breaks between the spoken words.

"In summing it up, some of the important things to keep in mind when preparing your script are as follows:

"1—Let the picture tell the story. There is no need to tell your audience via narration what already appears on the screen or where the scene makes it self-evident. Remember that the whole purpose of your motion picture is to convey ideas visually. The function of your sound is to augment and amplify what the picture reveals.

"2—Say enough to explain a scene or the action displayed within it—then stop talking. Don't say too much about things which the audience can see for themselves. Also, be careful about giving endless facts and figures. A few may be alright if they are pertinent and add to the story, but don't overdo them; no one remembers them anyway.

"3—Make it a point to identify the picture subject at the beginning of a scene. If a scene, for example, pictures a yacht in a harbor, we may begin the narration like this: 'This is the yacht, Helen C, lying at anchor in Milwaukee's beautiful South Shore yacht basin.' One should always be very pointed in his remarks; too often a narrator is more concerned with words than with the picture, and end up with a remark something like this: 'Dr. Arthur Hankwitz, past-president of the Amateur Movie Society of Milwaukee, is the proud owner of a Higgins boat, which he keeps anchored at the foot of Nock Street, where the South Short Yacht Club is located.' Unnecessary verbiage and needless rambling are tiring to an audience and yourself. Remember, therefore—*keep it short and to the point!*"

And there we have the sound advice of a seasoned amateur who speaks from experience.

Incidentally, readers will be interested in two services which Bell & Howell Company has rendered movie amateurs interested in magnetic sound for their movies. The company has begun publishing "Pioneer Tracks," a new publication for magnetic sound movie makers

AMERICAN CINEMATOGRAPHER

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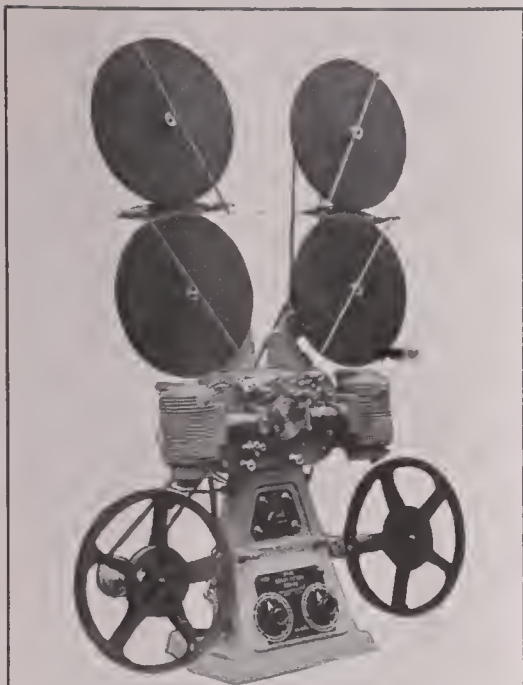
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which will serve as a medium for the exchange of ideas and experiences in magnetic recording. The first issue was out on April 1st of this year. Subsequent issues will be sent on request to anyone interested without charge. Just drop a line to Bell & Howell Company, 7100 McCormick Road, Chicago 45, Ill., with your request to be put on the mailing list.

The company more recently has published a comprehensive booklet titled, "Tips on Making Your Own Magnetic Sound Movies," which tells just about all there is to know about recording magnetic sound for 16mm films, using Bell & Howell's *soundstripe* and the Bell & Howell Model 202 magnetic recorder-projector. The book's chock full

of data for others, too. It isn't for Model 202 owners alone. And there is a very interesting chapter on preparing a sound script—the very subject of this article.

Sound for amateur movies is the big trend of the future. So watch subsequent issues of *American Cinematographer* for additional articles on the subject. Readers who have interesting experiences in this field they'd like to report to our readers are invited to write us—or better still, prepare an article for AC on the subject. You'll be paid regular contributor's rates, and this in turn will buy a lot of magnetic tape! Write the editor first, and outline your article idea. **END.**

PSA Convenes In Los Angeles Aug. 3-8

Special events slated for amateur movie makers

FOR THE FIRST TIME in many years, the Motion Picture Division of the Photographic Society of America will play a prominent role when the Society's 20th annual convention is held next month in Los Angeles, movie capital of the world. The big annual get-together of PSAers will get under way August 3rd and run through August 8, with headquarters at the Los Angeles Biltmore Hotel.

The Society's big six-day program will include papers, talks, and activities in the following fields of photography: pictorial, color, technical, nature, photo-journalism, stereo, camera club, and amateur motion pictures. But it is in the latter, perhaps, that one of the most interesting programs has been planned.

PSAers Charles Rosher, ASC, and George Sidney, eminent MGM director, forming an "unofficial" entertainment committee for the visitors, have arranged for an outstanding program long to be remembered by those who take part. This is a field trip to one of Hollywood's big studio location ranches.

Normally, it's almost impossible for visitors to see movies being made in the studios or on location; but this trip will enable PSA members to visit Corriganville Movie Ranch, a 2000 acre movie making kingdom, dotted with movie sets of all descriptions, where such famed productions as "Burma Road," "Fort Apache," and hundreds of others have been made. Perhaps it's no exaggeration to say that more than half of all western thrillers have been filmed here. It's a photographer's paradise!

But here's the big surprise in store for you moviemakers who plan to visit Corriganville that day. A complete Hollywood movie making crew and cameras will be on hand, making movie scenes

under the guidance of director George Sidney, and which will be photographed by director of photography Charles Rosher and crew. Many "extras" for the scenes are to be chosen from among PSA conventioners.

This big movie event is scheduled for August 6th. Busses will leave the Biltmore Hotel at 11:00 A.M. Tickets, covering transportation both ways, will cost \$2.00 per person.

Three days later, another big event is scheduled. This is another field trip—to famed Knott's Berry Farm, thirty miles southeast of Los Angeles. Having grown over the years from a simple roadside stand to a vast restaurant-catering-sight-seeing enterprise that is the mecca of cameraists, its big attraction is the reconstructed Western Pioneer Town, complete in every detail.

Here will be found western buildings that have been transplanted intact from ghost towns and vanishing western cities. These are filled with treasured relics of the early West so complete and so authentic that Knott's has become known as the Museum of the Old West.

Western models to fit the settings will be on hand, and it will be possible for movie makers to film interesting action and continuity in the midst of this unusual western locale.

This trip has been arranged for those PSA conventioners who will remain over after the Society's banquet the night of the closing day of the convention. Price of \$3.50 includes chicken dinner at Knott's Berry Farm and chartered bus transportation both ways.

Early registration, both for the convention and the events described above, is important. You need not be a member of PSA to attend, but you must be registered, according to PSA officials.



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3-D TELEVISION

(Continued from Page 320)

one produces an image on half of the picture tube.

"Milton L. Gunzberg, President of Natural Vision, is working on a 3-D TV system which will not require glasses. He has tried it successfully, but it is fuzzier than systems using Polaroid lenses. Gunzberg, who says that 3-D TV will be here before color, reportedly has a receiver attachment which could sell for about \$15, enabling the set owner to obtain the 3-D effect.

"And bigger and better things are in the making. Indications are that stereo and wide screen will eventually combine, both in motion pictures and TV, and integrate with stereophonic sound to present realism never before obtained."

3-D FILM FESTIVAL

(Continued from Page 326) 330

No entries for the Festival will be accepted before October 1st. Prospective entrants thus have another three months in which to complete production of their films. Closing date for entries is midnight, December 1, 1953.

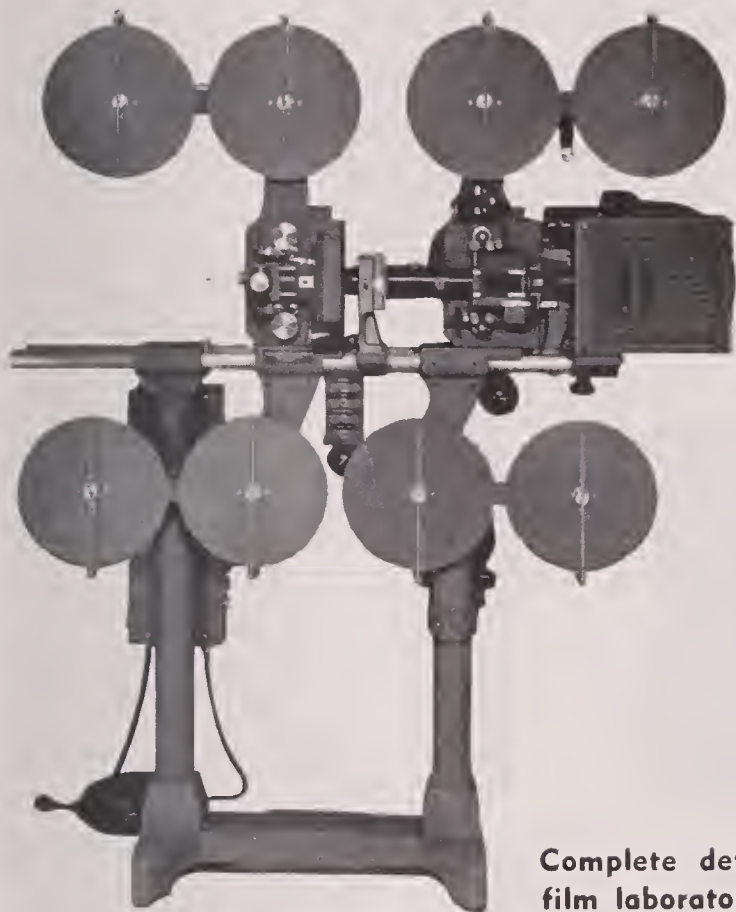
The committee which will evaluate entries and select those films to be screened during the three-day festival in Hollywood, will include six leading directors of photography in the Hollywood studios, most of whom have photographed 3-D films that are currently being shown in the nation's theatres.

And now a word to those 16mm filmmakers who have not yet started on their 3-D film entry. Equipment of the three manufacturers previously mentioned is now generally available. Both the Bolex and the Nord equipment have been described in articles in earlier issues of *American Cinematographer*. That of Elgeet Optical Company (see illustration) is the latest on the market, and will be described in detail in an article now being prepared for our August issue. Your camera dealer will be glad to demonstrate 3-D movie making attachments, or to arrange for a demonstration where such equipment is not yet regularly carried in stock.

Now that such simple 3-D attachments are available, a broad new field of movie making has been opened to the 16mm filmer, both amateur and professional. Indeed, a number of 3-D films in 16mm color already have been turned out for clients by industrial film producers using Bolex 3-D equipment—one that comes to mind being "Pack-

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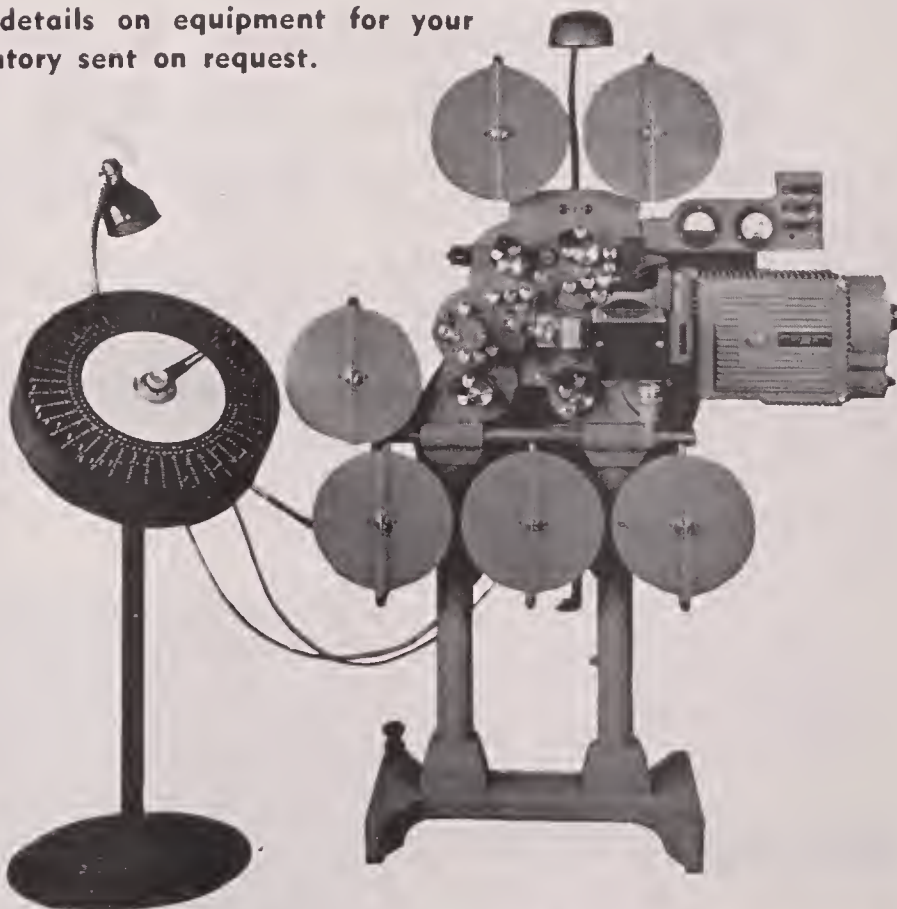
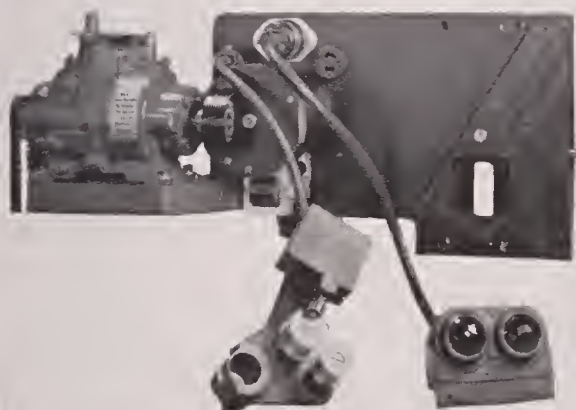
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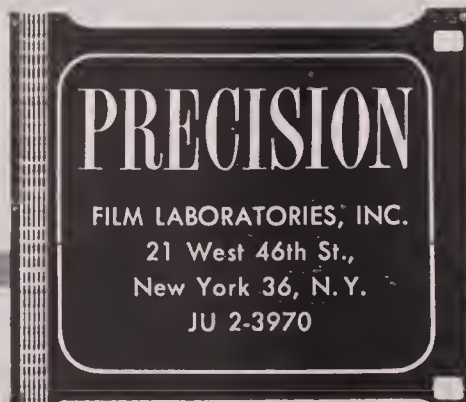
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aging—"The Third Dimension," produced by Academy Film Productions, Chicago, for Stone Container Corporation.

Because of the present cost of 3-D attachments for 16mm cameras (the lowest-priced, the Nord, is around a hundred dollars) not every 16mm amateur is expected to rush into 3-D film making at once. But when one considers that cost of 3-D attachments is little more than that for many other pieces of cine equipment, and especially the modern "new look" that stereo gives movies of travels, vacations and continuities, the cost is well worth undertaking.

Now that 3-D feature films have become so popular with the public, 3-D home movies are certain to follow this popular trend. American Cinematographer's 3-D Film Festival has as one of its purposes to give impetus to this trend, and to demonstrate to all movie makers what a tremendous impact there is in 16mm movies filmed in 3-D.

To enter your 3-D film in AC's Festival, a special entry blank will be supplied—published in a forthcoming issue from which it may be clipped, and filled out, and mailed to the Committee. Watch for it. And in the meantime, get busy on *your* 3-D picture!

VISTARAMA

(Continued from Page 326)

same screens now being installed in theatres throughout the country to accommodate the latter process.

The Vistarama process stems from the same basic research as does CinemaScope, namely the anamorphoscope principles set down by French optical expert Henri Chretien. However, the actual lenses were formulated and ground by the Simpson Optical Co. of Chicago, from computations worked out by their own engineers. This is the firm that developed the complex optical system for the Norden Bomb Sight, widely used during World War II.

The Simpson engineers approached the problem from the point of view of the finished result and then worked backwards, so to speak. More specifically, they took a conventional 35mm frame, cropped it to a 1 to 2.66 ratio, blew it up, and then computed the mathematics of "squeezing" that composition back into a full 35mm frame. They had the first lens ground within ten days after it had been ordered by Dudley. This lens was unusually sharp

and needed only minor corrections. The second lens came even closer to the ideal. This third lens was pronounced perfect, and its formula was set as the standard.

Unlike CinemaScope which requires two separate and different anamorpho-scope lenses (one on the camera and another on the projector), the Vistarama process uses the *same* lens on both camera and projector. Admittedly, however, there is a slight increase in sharpness to be gained when a separate, somewhat larger anamorphic lens is used on the projector, and it is expected that this system will be standardized.

"One of the major features of the Vistarama lens," says Carl Dudley, "is that prints of any aspect ratio, from conventional screen proportion up to 2.66, can be made from a single negative. This relieves the producer of the necessity of shooting two or more negatives to achieve this result."

Richard Goldstone, vice president in charge of production at Dudley Pictures Corporation, explains in further detail just how this works: "'The Robe,' now nearing completion at 20th Century-Fox, was filmed both in CinemaScope and the conventional 3 to 4 screen ratio," he points out. "This necessitated two cameras, two crews, and a certain amount of re-staging to adapt

the scope of the action to both systems. In tests with the 1 to 2.66 aspect ratio, it has been observed that the audience tends to concentrate on the center portion of the screen. Therefore, while the full frame gives great scope to the composition of crowd shots or scenic panoramas, any significant plot action staged at the peripheral limits of the frame might easily get lost. With this in mind, the director would shoot in Vistarama, grouping his compositions to take full advantage of the wide screen, but in such a way that nothing important would be cut off in masking for narrower aspect ratios. This would necessitate re-staging of only about 5% of the scenes.

"In the case of a low-budget Western, for example, the producer anxious to insure proper return on his investment would make half his prints in the full-frame 1 to 2.66 ratio to fit panoramic screens now being installed in many theatres throughout the country. However, to assure play dates in the many theatres still using conventional screens, the remainder of the prints would be made in the 3 to 4 ratio, the masking being done when color separation negatives are made from the original. The image on the film would still be 'squeezed,' but when projected with the anamorphic lens, it would become 'un-

squeezed' and automatically masked to fit 3-to-4 screens. This would eliminate the need for a second camera, yet it would give the producer a film capable of being projected to any one of the many aspect ratios now being 'standardized' by various studios."

The screen normally used both for CinemaScope and Vistarama has a curve of about 1 inch to every foot of width. This curve is not necessary to satisfactory projection of either system, but seems to add greatly to the resulting illusion of depth. When sitting at the side of the screen the viewer experiences no distortion—however, paradoxically enough, the closer one sits, the less brilliant becomes the pictures. When one moves back, the picture becomes brighter.

The Vistarama process lends itself easily to 35mm blow-up from a 16mm original. Similarly, a 35mm original can be reduced to 16mm. "Vistarama lenses will be made available to producers of 35mm and 16mm films alike," Dudley declares. "There will be no script or booking approval and the lenses are to be made available on a very reasonable basis."

It is, of course, in the 16mm field that the new process will create the most stir. In a demonstration set up at

(Continued on Page 345)



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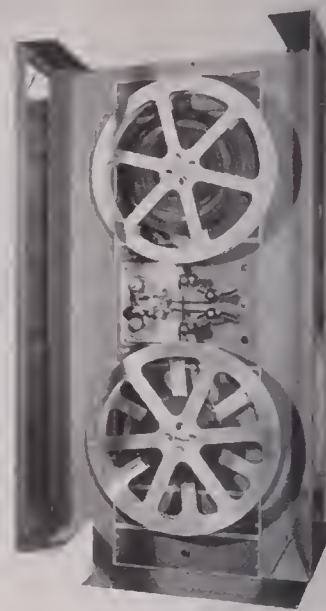
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OF INTEREST TO film producers as well as to film exhibitors is the new model 335-T Magnasync Stereophonic Theatre Reproducer for the production of three-channel stereophonic sound for 3-D and wide-screen presentations.

The fully enclosed all-metal cabinet which houses the recording unit, amplifier, driving mechanism, and the supply reels, is 68" in height, 27" wide and 17" deep. It is finished in platinum gray wrinkle enamel, and has two doors having full length glass panels which slide out of the way when opened.

The low-impedance, three-channel head provides for the addition of more channels in the event additional track accommodations will be needed later. Track placement is in accordance with approved recommendations of the Motion Picture Research Council, and there is a full 55 db separation between tracks.

The 35mm "Synkinetic" film transport offers less than 1% flutter. All components of the basic film transport are mounted on a single rugged casting. Silicone-damped shock arms prevent film breakage.

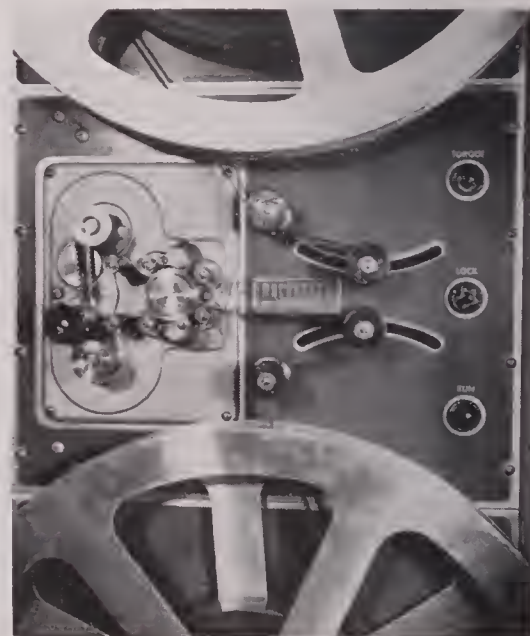
There is constant-torque takeup operating through oil bath clutch plate overdrive that is powered by gear-head motor and V-belt drive; the supply reel also features a constant-torque clutch.

The audio system includes such features as: individual plug-in pre-ampli-

fiers terminating at zero-level, 600 ohms, balanced line; equalization in accordance with Council recommendations; power supply with full regulation; and a built-in monitor amplifier with selective volume controls.

Another exclusive feature is the full remote control provided that has prominent pilot lights on face of the unit which indicate to operator when the pre-amplifiers are on, torque motor is operating and interlock motor is locked with the projectors.

Price of this Magnasync reproducer is \$3,350, complete with amplifiers, f.o.b. North Hollywood, Calif. Manufacturer is Magnasync Mfg. Co., P.O. Box 707, North Hollywood, Calif.



Simplified film drive

VISTARAMA

(Continued from Page 334)

the Dudley headquarters, a standard Bell & Howell 16mm Filmosound projector equipped with a standard focal-length lens plus the anamorphic lens was placed 35 feet from a screen measuring approximately 22 by 8 feet—and at that distance it filled the screen with a brilliant image.

While the 16mm field for Vistarama will include both the industrial and home movie markets, its chief appeal will be to commercial clients, offering them, as Dudley points out, "the same exciting brand of showmanship and entertainment that has revolutionized Hollywood overnight."

Dudley recently completed demonstrations of Vistarama before leading manufacturers of 16mm cameras and projection equipment. As a result, all have agreed to take immediate steps to adapt their cameras, projectors and screen equipment for Vistarama. It is expected that one of the most popular new screen units will be a portable, slightly concave model measuring about 9 feet in width. In addition, the Dudley Corporation has announced that the new process will be available with Vistaphonic (stereophonic) sound in both 35mm and 16mm.

Dudley's own ambitious feature film production schedule for the near future bears out his own confidence in the Vistarama process. He has announced the forthcoming filmization of "Tobor," a science-fiction story to be filmed in Eastman color.

Also on the boards, to be shot in Vistarama, is "Round the World Weekend," a sort of jet-propelled concept of the original idea used by Jules Verne in his "Around the World in Eighty Days." Film for this feature will be shot in 17 foreign countries.

The third feature film planned is "The Fabulous Land," now being scripted by Geoffrey Holmes. This will be a pictorial report on the American scene, emphasizing the more spectacular aspects of contemporary American life.

Dudley's commercial film department soon will undertake an intensive program of Vistarama industrial films when crews begin production of a special picture for the Southwestern Public Service Company, shooting in Texas. Already contracted for also are Vistarama commercial films in 16mm for TransWorld Airlines, Santa Fe Railroad and the Association of American Railroads. These clients are impressed with the dramatic new scope that the

(Continued on Page 347)

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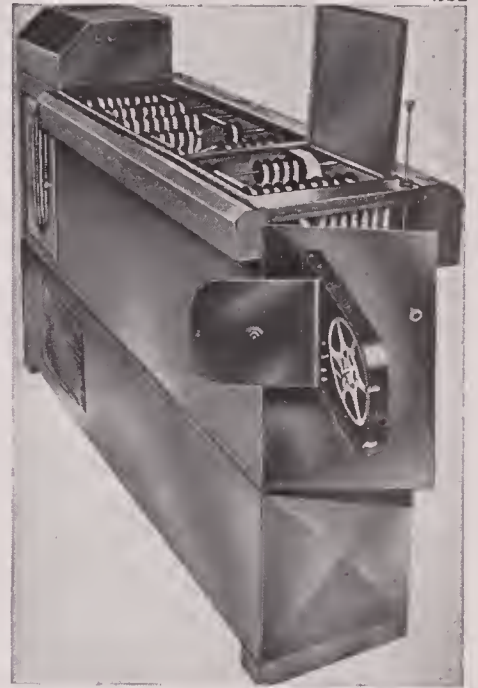
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VISTARAMA

(Continued from Page 345)

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BASIC INDOOR LIGHTING

(Continued from Page 334)

of general set lighting are *high key* and *low key*. High key is a style of illumination which is used to good effect in action pictures and sophisticated comedies, when a lively pace is called for. It is characterized by strong key light and a more intensified fill, so that contrast is cut down and brightness dominates. We do not mean to imply that high keyed lighting is flat. On the contrary, it has depth and modeling, but the contrast is not as extreme as it is in more dramatic types of set lighting.

As in the lighting of closeups, so, too, in general set lighting the key light should not hit the set straight-on, but should come one side or the other. There should be a definite source indicated (to give a reason for the high-lights), and its effects should follow through in the entire sequence.

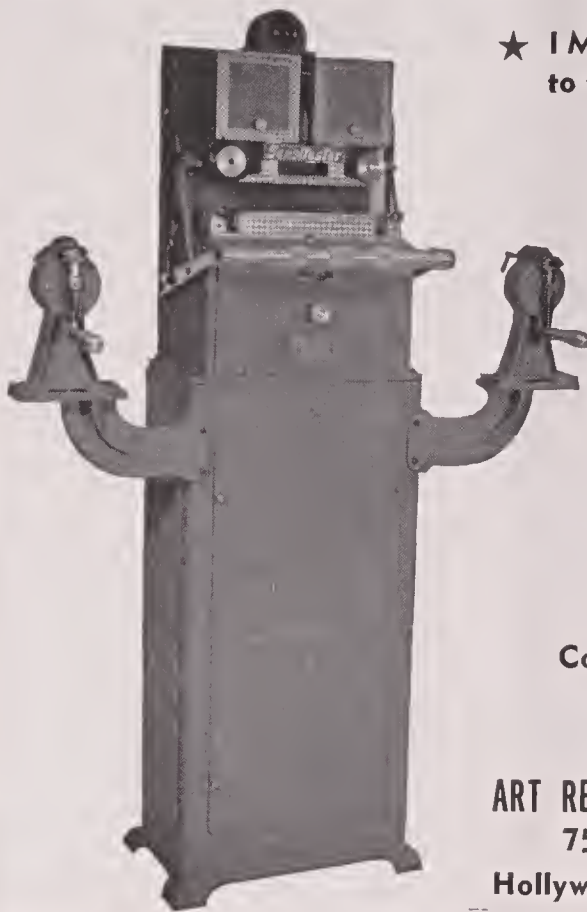
When the source comes from outside a window, its direction may vary with the time of day. For instance, morning sunlight falls at a sharp angle from above; whereas, evening sunlight shines directly into a room, casting long shadows. In a second story room, light from a street-light will, of course, shine into the room from below.

Many 16mm film-makers have a difficult time matching the lighting of closeups to that of long shots. They design the long shot lighting first, and then try to match the closeup lighting to it, discovering, in many cases, that the lighting scheme is not at all right for the closer shot. They then rearrange the lights until the closeup looks good, only to find, when the film is finally cut, that the lighting of the two scenes does not match at all.

Because of this, it is better policy to plan the lighting of the closeup first, and then broaden it out into general set lighting for the long shot.

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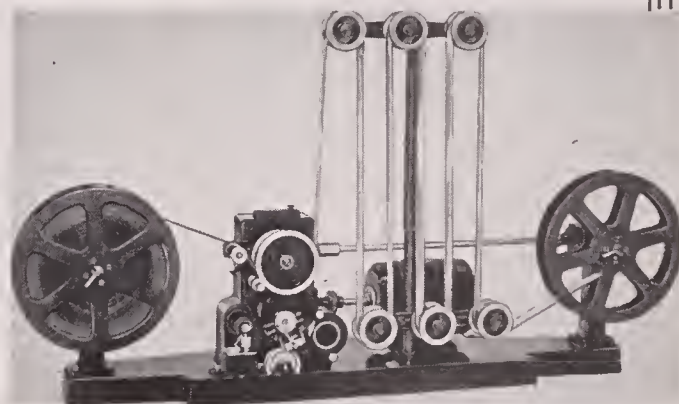
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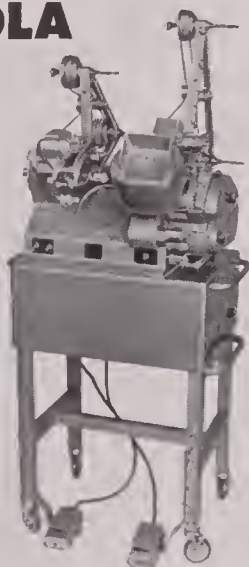
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DOUBLE SYSTEM PHOTOGRAPHY

(Continued from Page 328)

switch may start either camera and change from one to the other as desired and as filming progresses.

The switch used for this control may be either a double-pole-double-throw toggle switch, or a similar fast acting relay.

One pole of the switch transfers the current from one camera to the other; thus one of the two cameras is always in operation.

The second pole on the switch interrupts the line leading to the galvanometer of the single system camera. (Fig. 1). This is the crux of the entire technique, for the interruption produces on the Auricon sound track the visual cue we need for editing and synchronizing the pictures.

The switch is arranged so the galvanometer on the #1 camera is connected when the #1 camera is operating. This produces the conventional optical sound track any time camera #1 comes into operation. Later, these lengths of single system track can easily be matched to the double system magnetic master. Having matched this single system track, we have also matched all the photography made with the #1 camera.

When switching from camera #1, we interrupt both the galvanometer and the noise reduction current. The galvanometer swings instantly to its center position, and this produces an abrupt change in the optical sound track (Fig. 2), which appears as a wide area of unmodulated track. It occurs on the tail of each scene filmed in camera #1, and marks the changeover point.

By using these visual cues on the single system track, the film editor will have accurate sync marks for each scene made on camera #2. However, he must remember that the cue marks are 26 frames ahead of the picture.

After the scenes made on camera #1 have been matched with the magnetic master, we are ready to complete the editing by splicing in place the scenes made on camera #2. Splices are made

so the first frame of each camera #2 scene is joined to the 25th frame following the cue mark which appears on the #1 camera sound track (Fig. 3).

In splicing at the end of each scene made on camera #2, we simply cross over on a gang synchronizer to the first frame of the following scene, which has been filmed in camera #1.

Since all takes on camera #1 have been accurately matched to the master magnetic sound track, there is no danger of progressively losing sync as the scenes are intercut.

In this system, the original negative is carefully prepared for printing with a minimum of handling. We work directly with the original film, and do not use a work print.

Using this technique, one is able to produce quality sound films of continuous un-interrupted action with a minimum of investment time.

EASTMAN COLOR FILMS

(Continued from Page 323)

The separation positives are printed onto a new type Color Internegative Film (Type 5245) using a registering printer. This new film has slightly higher contrast characteristics than the earlier film, hence requires somewhat lower contrast separation positives than was required for the earlier product. As with the Color Negative, improvements have also been made in this film, with the result that there is better rendition of blue subjects. The separate layers of the Color Internegative Film are exposed through the appropriate separations using filter packs of the proper type.

Processing of the Color Negative, Color Print and Color Internegative Films is carried out in conventional type continuous processing machines, which provide for all of the steps required. These include, in addition to the washing steps, prebath for backing removal, color development, first fixing bath bleach, second fixing bath, and wetting agent or stabilizing bath. Processing of the Color Internegative Film requires the same solutions as for the Color Negative, but a somewhat shorter development time is used for the former. For the Color Print Film, a different color developer solution is used than for the Color Negative Film. Other solutions are the same.

The accompanying schematic diagram illustrates the various steps in processing Eastman color films with the Eastman Color processing machine. Two ad-

ABOUT THE AUTHORS

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HARRY WEBB is a graduate student and instructor in photography at the University of Minnesota.

ditional diagrams show details of the power buffer, which removes the anti-halation backing on the films, and the sound track developing unit.

Development of the sound track is done by means of a bead-type applicator wheel, which dips into a small tray of sound track developer solution. This unit is located in the production line of the processing machine, after the wash tank following the bleach tank.

The processed color internegative may be intercut with the original color negative for release printing onto Color Print Film, Type 5382. Reduction prints can also be prepared on the Type 7382 (16mm) Film from the 35mm color negative or internegative.

In order to maintain proper control of the processing of these color films, it is necessary to make regular chemical analyses of the various solutions and sensitometric tests as well.

More complete data concerning these new color films, including full details on processing procedure, formulae, etc., are contained in a paper to be published shortly in the Journal of the SMPTE, and prepared by W. T. Hanson, Jr., of the Research Laboratories, Eastman Kodak Company, Rochester, N. Y., and W. I. Kisner, Motion Picture Film Dept., Eastman Kodak Company, Rochester, to whom the author is indebted for the technical data furnished for this article.

BOUT FILMED IN 3-D

(Continued from Page 319)

crews set to work erecting the ring. At the same time we brought in our crews, our cameras and miscellaneous equipment and began preparations that did not end until just moments before the big fight began.

The photographic equipment consisted of two Stereo-Cine 3-D cameras (each comprising two 35mm Eclair Camerettes), one Mitchell 3-D camera (comprising two Mitchell NC's mounted in opposed position and photographing through angular mirrors), two standard 35mm Mitchells operating at 72 frames-per-second for slow-motion footage, and one Wall 35mm single-system sound camera. The latter was used to record a master picture and sound track as an aid to editing the collective footage made by the other cameras.

The positions in which these various cameras were set up with relation to the ring are shown in the accompanying sketch. The two Stereo-Cine cameras were mounted on "high-hats" set up on special camera platforms that were erected close to the ring and at either

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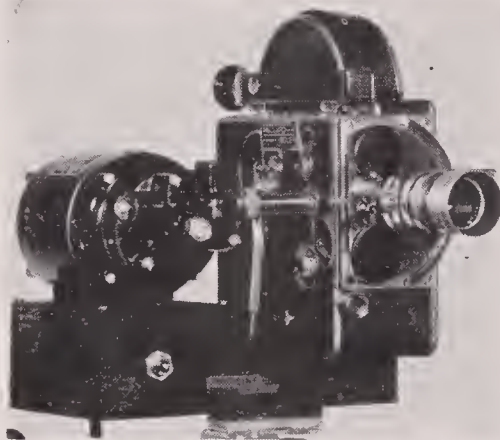
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Allied Artists

- GIL WARRENTON, "Deputy Marshall," with Wayne Morris, Beverly Garland, Myron Healy, John Kellogg. Director, Thomas Carr.
- HARRY NEUMANN, "Fighter Attack," (Color) with Sterling Hayden, Joy Page, J. Carroll Naish. Dave Willock, Lesley Selander, director.
- WILLIAM SICKNER, "Mexican Quest," (Lindsley Parsons Prods.) with George Brent, Karren Sharpe, Hillary Brooke. Frank McDonald, director.
- GIL WARRINGTON, "West Of Texas," with Wayne Morris and Elaine Riley. Lewis D. Collins, director.
- CARL GUTHRIE, "Bowery Bloodhounds," with Leo Gorcey, Huntz Hall, Joyce Holden, and The Bowery Boys. Edward Bernds, director.

Columbia

- CHARLES LANG, "A Name For Himself," with Judy Holliday, Jack Lemmon, Peter Lawford, Connie Gilchrist, Walter Klauvin, Vaughn Taylor and Kit Guard. George Cukor, director.
- LESTER WHITE, "Gun Fury," (3-D Technicolor) with Rock Hudson, Jed Carey, Donna Reed, Roberta Haynes, Lee Marvin, Pat Hogan, Leo Gordon. Raoul Walsh, director.
- FRANK PLANER, "The Caine Mutiny," (Kramer Co., Technicolor) with Humphrey Bogart, Jose Ferrer, Van Johnson, Fred McMurray, Robert Francis, May Wynn, Tom Tully, Arthur Franz. Edward Dmytryk, director.
- LESTER WHITE, "Drums of Tahiti," (Esskay Pictures, Technicolor) with Patricia Medina and Dennis O'Keefe. William Castle, director.
- HENRY FREULICH, "The Nebraskan," (3-D, Technicolor) with Jed Carey. Fred F. Sears, director.

Metro-Goldwyn-Mayer

- CHARLES ROSHER, "Kiss Me Kate," (3-D, Wide-Screen, AnscoColor) with Kathryn Grayson, Howard Keel, Ann Miller, Bobby Van, Bob Fosse, Tommy Ralls, Keenan Wynn, and James Whitmore. George Sidney, director.
- ROBERT SURTEES, "The Long, Long Trailer," with Lucille Ball, Desi Arnaz, and Marjorie Main. Vincent Minnelli, director.
- HARRY JACKSON, "Rhapsody," (Technicolor) with Elizabeth Taylor, Vittorio Gassman, John Ericson, Louis Calhern, and Jacqueline Duval. Charles Vidor, director.

Paramount

- ARTHUR ARLING, "Red Garters," (Wide-screen, Technicolor) with Rosemary Clooney, Don Taylor, Gene Barry, Guy Mitchell, Pat Crowley, Joanne Gilbert, and Buddy Ebsen. Mitchell Leisen, director.

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- RAY RENNAHAN, "Flight To Tangier," (3-D, Wide-screen, Technicolor), with Joan Fontaine, Jack Palance, Corinne Calvet, Robert Douglas, Jeff Morrow, Richard Shannon. Charles M. Warren, director.

- LIONEL LINDON, "Lost Treasure Of The Amazon," (3-D, Wide-screen, Technicolor), with Fernando Lamas, Rhonda Fleming, and Brian Keith. Edward Ludwig, director.

- DANIEL FAPP, "Knock On Wood," (Wide-screen, Technicolor) with Danny Kaye, Mai Zetterling, Torin Thatcher, David Burns, Leon Askin, and Abner Biberman. Producer-directors, Norman Panama and Melvin Frank.

- WILLIAM MELLOR, "Alaska Seas," (Wide-Screen) with Robert Ryan, Van Heflin, Jan Sterling, and Brian Keith. Jerry Hopper, director.

- ERNEST LASZLO, "The Naked Jungle," (Technicolor, Wide-screen) with Charlton Heston, Eleanor Parker, Abraham Sofaer, and William Conrad. Byron Haskin, director.

R.K.O.-Radio

- WILLIAM SNYDER, "Son Of Sinbad," (3-D, Color) with Dale Robertson, Sally Forrest, Lili StCyr, Vincent Price, Ted Tetzlaff, director.
- HARRY WILD, "The French Line," (Edmund Grainger Prod, Technicolor) with Jane Russell, Arthur Hunnicutt, Craig Stevens, Mary McCarty. Lloyd Bacon, Director.

20th Century-Fox

- MILTON KRASNER, "The Story of Demetrius," (Cinemascope, Technicolor) with Victor Mature, Susan Hayward, Michael Rennie, Ann Bancroft, Jay Robinson, Barry Jones, and William Marshall. Delmar Daves, director.
- JOSEPH MACDONALD, "Hell and High Water," (Technicolor, Cinemascope) with Richard Widmark, Bella Darvi, and Victor Francen. Samuel Fuller, director.

Universal-International

- IRVING GLASSBERG, "Border River," (Technicolor) with Joel McCrea, Yvonne De Carlo, Pedro Armendariz. George Sherman, director.
- WILLIAM DANIELS, "The Glenn Miller Story," (Technicolor) with James Stewart, June Allyson, Henry Morgan, Barton MacLane, Ben Pollack. Anthony Mann, director.
- MAURY GERTSMAN, "The Glass Webb," with Edward G. Robinson, John Forsythe, Marcia Henderson, Kathleen Hughes and Richard Denning. Jack Arnold, director.

Warner Brothers

- ARCHIE STOUT, "Hondo," (Wayne-Fellows Prod., All-media Warner-Color) with John Wayne, Geraldine Page, Ward Bond, Rodolfo Acosta. John Farrow, director.

Independent

- JOSEPH BIROC, "Rage Of The Jungle," (Alpine Prods.) with Glenn Ford, Ann Sheridan, Zachary Scott, Jack Elam, and Rodolfo Acosta. Jacques Tourneur, director.
- ROBERT DEGRASSE, "Marry Me Again," (Alex Gottlieb Prod. for RKO) with Marie Wilson, Robert Cummings, Mary Costa and Ray Walker. Frank Tashlin, director.
- STANLEY CORTEZ, "Riders to the Stars," (Tors Prod., Color). Cast unannounced. Richard Carlson, director.
- VIRGIL E. MILLER, "Crazylegs, All-American," (Hall Bartlett Prod., Wide-Screen) with Elroy (Crazylegs) Hirsch, Lloyd Nolan, Joan Vohs, and John Brown. Francis Lyon, director.
- ERNEST HALLER, "Carnival," (King Bros., wide-screen, color) with Anne Baxter, Steve Cochran, Lyle Bettger, J. C. Flippen, Helene Stanley. Kurt Neumann, director.

side. This method of mounting was favored in place of using conventional tripods in order to take up as little space as possible. (As it was, we were taking up valuable space normally occupied by ring-side seats selling for \$50 each!).

Because the Stereo-Cines set up so close to the ring presented possible hazards in the event a boxer was knocked from the ring, the Illinois Boxing Commission at the last minute compelled us to provide some form of protection. This we did by mounting panels of $\frac{3}{4}$ -inch plywood covered with inch-thick sponge rubber above the cameras. These were securely mounted so as to break the fall of a fighter, should he be forced through the ring, and thus protect both fighter and cameras from injury.

Lenses of the Stereo-Cine 3-D cameras were virtually on a level with the floor of the ring. By shooting with cameras close to the ring, the ropes greatly enhanced the depth effect of 3-D photography, especially where there were no other comparable elements in the scene to accent depth. In 3-D cinematography, depth effect falls off rapidly with distance, so we had to get all the depth we could pack into the scenes right in the foreground.

The Mitchell 3-D cameras were mounted on a tripod above one of the aisle tunnels of the stadium, about 60 feet from center of the ring. Because we were using 6-inch lenses on the 3-D Mitchell, we had to force the interocular on a good many shots.

Up in the Stadium balcony, 120 feet from ring center, we mounted two standard Mitchell 35mm cameras, set to operate at 72 frames per second. Two cameras were used here in order to insure a continuous, uninterrupted record. Only one camera operated at a time; the other stood by, fully loaded, and took over as film supply in the other camera neared the end. Readers naturally will ask why we used standard cameras here when the production was to be in three-dimension.

Because it would have been more difficult to secure the footage with a 3-D camera operating at ultra-speed and because we were using telephoto lenses at this distance, we elected to make a single negative from which dual 3-D prints were made optically. This is the same method often employed in making animation films in 3-D. The effects of convergence and interocular are nil, first because of the distance and second, because the ultra-speed footage intercut with that made by the 3-D cameras is of very short duration—

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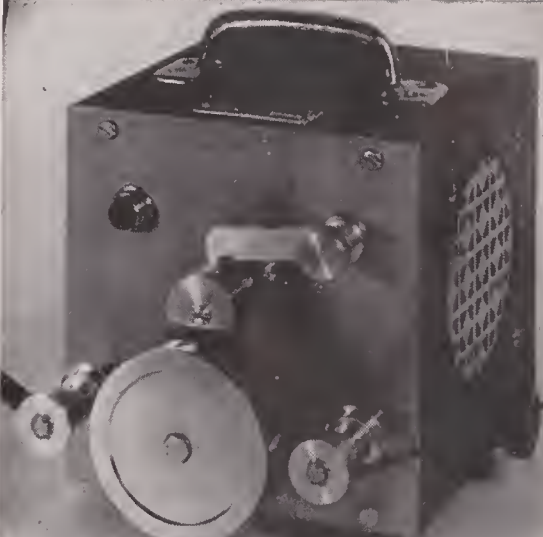
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just short flashes on the screen, and therefore any defects in convergence are hardly noticeable.

The remaining camera—the Wall single-system—also was mounted on the balcony, near the ultra-speed Mitchells. Its purpose—to record an editing track—has already been explained. The master sound track was recorded separately, magnetically, from the NBC broadcast of the fight.

We had sufficient magazines loaded and in readiness to enable us to shoot a 15-round bout with all the cameras, if necessary. We brought along 60 magazines for the Eclairs alone. In all, we had 9 cameras operating on the scene. This required a crew of 30 men, most of whom had been recruited in Chicago and New York.

To direct the operations of all these men scattered about the stadium, we provided a two-way intercom phone system. Thus I was in constant communication with each camera operator during the fight. Originally, of course, we planned to direct the photography of the bout much the same as is being done today in filming TV shows, where more than one camera is used. However, and very fortunate, too, the way it turned out, every camera was rolling when the dramatic knockout took place. We thus were able to show the crucial action—considered controversial also until the films were examined by officials—from several different angles, in three-dimension and in slow motion.

A further interesting photographic note, perhaps, is the fact we brought in no studio lighting units. For illumination we utilized the lighting already provided in the stadium. Here a great number of incandescent units had been mounted over the ring, throwing intense light directly from above. The reflected light bouncing from the canvas happily supplied what might otherwise have been produced by fill lights. We were able to work at an aperture of approximately $f/4.5$ on all cameras—including the high speed cameras, which were loaded with the new, fast DuPont negative. Incidentally, we used both DuPont and Eastman Plus-X in the other cameras—about 50-50.

I have been asked if we used the Research Council's convergence calculator in setting up the 3-D cameras. This we did not. Raphael G. Wolff, president of Stereo-Cine Corp., sent along his technical men, Henry Ludwin and A. V. S. Bodrero, who managed this phase of the operations, using methods they have developed in conjunction with the equipment. The interocular and convergence for the two Stereo-Cine cameras working up close at ringside often had to be approximated. In shooting

fast action close up, it simply isn't possible to change the interocular progressively as the fighters move toward and away from the cameras.

A question frequently asked is whether shooting the bout in 3-D involved anything different in photographic technique than if we had shot the event 'flat' or in 2-D. If we had shot the bout with regular 2-D cameras, it would not have been necessary to have two cameras at ringside. Instead, we would have filmed the whole thing from a distance, using telephone lenses. You simply cannot get the same results in 3-D shooting from a distance with long focal length lenses. Also, by setting up the 3-D cameras close to the ropes, we were provided with an excellent medium for enhancing the depth effect, so necessary for good stereo movies.

After we were assured the bout was officially ended—there were many who expected a controversy to result, and probably a resumption of the bout—all exposed film was rushed to the DeLuxe Laboratories in New York City for developing and printing. Dailies were screened the following day, the film edited and the sound dubbed in, and regular release prints were shown in most of the nation's major theatres the following Monday.

No little credit is also due Al Soudan, chief electrician of the Chicago Stadium and to Bill Murray, maintenance man, whose assistance in setting up our equipment was largely responsible for our being fully prepared, ready to go into action, when the gong sounded, sending the contenders into action in that fateful first round.

SINGLE-FILM 3-D

(Continued from Page 319)

question that he has developed an ingenious process. As Colonel Palmer explained to the guests, what they now need is some "professional development."

The makeshift projection was by no means perfect. There was an annoying flicker which, Schenstad said, could easily be eliminated. The sequences filmed in the nearby countryside were not the best examples. Yet, despite these flaws, there was no getting away from it, the inventor has developed some thing unusual.

The Schenstad camera is a single lens device equipped with a color wheel and a disc called a beam splitter and what he calls a "coupled convergence lens." The camera catches 48 alternating images a second—one for the right eye

and one for the left. The color wheel, as it spins, creates the "color content" in each frame. The secret of the process, which enables Schenstad to obtain a color picture from a black and white film, principally is in the printing, and in the matching of the frames.

The single negative film is printed onto a positive film in the regular black and white method of processing. Whatever the process, the inventor did demonstrate that he had a black and white film which projected color on the screen.

The 35mm film carries two images to a frame, which gives the image on the screen a ratio of about 1.75 to 1.

Yet, while the camera work was not the best, and many of the sequences were taken under poor shooting conditions, the stereo was good and the color was of a soft "natural" quality. The shots most effective were of a herd of Holsteins in which the cows showed up in black and white, and the countryside in greens and other natural colors. An American flag also showed up well.

All in all, Schenstad and his associates showed that they had something unique. The task which faces them now is to adapt the system to standard equipment used in commercial theatres. This, they believe they can do. Associated with the inventor and Colonel Palmer is Dr. W. G. Harbit of Marshalltown, Iowa.

ACOUSTIC TREATMENT

(Continued from Page 324)

There are certain room proportions that are better than others, the cube being very inferior. In a small room that is cubical, the three normal modes of the room are resonant at the same frequency and excessive reinforcement results at this frequency. Rooms having dimensions proportional to the powers of the cube root of two have been found satisfactory. For example, dimensions in the ratio 1 : 1.26 : 1.58 or 1 : 1.58 : 2.56 will distribute these modes properly. Adhering to these ratios within, say, 5% will insure a distribution of the natural resonances of the room over the frequency range. This will provide a room of good basic proportions upon which it will be possible to add sound treatment without compounding mistakes. The ratio of dimensions of the projection room described is 1 : 1.30 : 2.35.

To the layman, sound absorbing material is simply sound absorbing material and the inclination is to cover the walls with anything sold under this name as a solution for all acoustic ills. It is at this stage that it is usually wise

(Continued on Page 354)

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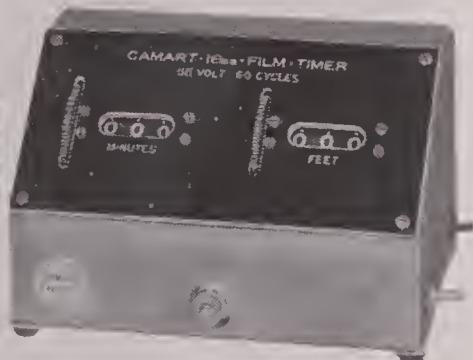
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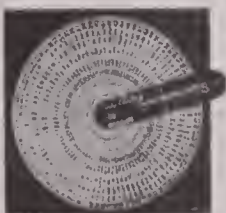
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See May 1953 issue, Am. Cinematographer

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ACOUSTIC TREATMENT

(Continued from Page 352)

to call in a good acoustical consultant. Material to be used for the treatment of the walls must be selected carefully. The amounts to be used must be carefully determined and the material must be distributed and mounted properly if acceptable results are to be assured.

For example, the common type of 12-inch square acoustic tile of one inch thickness might absorb 70 or 80 percent of the sound falling upon it in the upper frequency ranges, while at 100 cycles per second the absorption coefficient might be only about 15 percent. If we use great amounts of such material which is almost transparent to the low frequencies we allow the low frequency energy to bounce around the room far too long. Thus too much of such material actually favors the low frequency energy which causes the most trouble. Excessive normal mode excitation by this low frequency energy results in a room with "boomy" characteristics.

It is fortunate that deficiencies in the low frequency absorption of the common cane fiber tiles can be balanced by plywood panels which, if properly mounted, absorb better in the low frequency region than in the high. The same plywood panels can be used to diffuse the sound energy in the room and thus discourage multiple reflections from opposite flat surfaces. If false walls are to be built to bring the room proportions into proper ratios, consideration should be given to including the walls for diffusing effect.

Simply inclining flat plywood panels is a great step toward the diffusion of the sound energy impinging upon it. Bending the panels on the arc of a circle form "polycylindrical diffusers" which are even more efficient. To be effective in diffusing the troublesome low frequency energy the panel dimensions should be large. The plywood diffusing elements shown in the accompanying photographs are 1/4" in thickness and a standard 4-foot width is used. The flat panels are inclined at a slope of about 1 to 6. The curved diffusers rise about 4 inches in a 4 foot span.

To make the inclined or cylindrical diffusers the plywood is nailed to carefully shaped ribs or bulkheads. These are sawed from two-inch lumber and they divide the space behind the plywood into separate cavities. By placing these bulkheads at random spacings, the cavities are of different volumes and each tuned to a given frequency like a bass drum. The vibration of the

plywood "drumhead" results in friction between the fibres of the plywood and much of the sound energy is changed to heat. To avoid rattles the plywood should be securely nailed or screwed to its mounting strips. Felt strips could be used between the plywood and the frame.

The cane fibre tiles do their best work if mounted in patches, and an attempt should be made to place patches of sound absorbing material on one wall opposite untreated surfaces on the other. Mounting absorbing material in the corners of the room is using it to greatest advantage. In general, randomness is greatly to be desired in the distribution of the material over the wall surfaces.

The treatment of the room shown in the photographs has resulted in a very satisfactory listening environment, having a pleasing brilliance. In the evaluation of sound tracks observers find it easy to detect flaws and we have experienced a much greater agreement among different observers in this room than in poorly treated rooms having dead spots and other defects. The live but diffuse conditions built into this room have resulted in good intelligibility in listening to reproduced speech.

The technical advice of Ludwig W. Sepmeyer during the course of this period is greatly acknowledged.—Author.

BULLETIN BOARD

(Continued from page 306)

conclusion of filming the last show of the season. "For making our life one wonderful picture after another," was text inscribed on trophy. According to Phil, the company made 40 pictures in a row without any friction whatever—a record unheard of in Hollywood. In return, George and Gracie hosted the crew to a buffet luncheon on the sound stage.

Dr. Charles Daily, of Paramount Studio's research department, will shortly make a national tour explaining to Paramount distributor personnel and exhibitors the advantages of using Paramount's preferred 1.66 to 1 aspect ratio in screening conventional backlog films; also how to build a new wide screen at nominal cost.

Charles W. Herbert, ASC, began production on a TV film series in Tucson, Arizona, last month.



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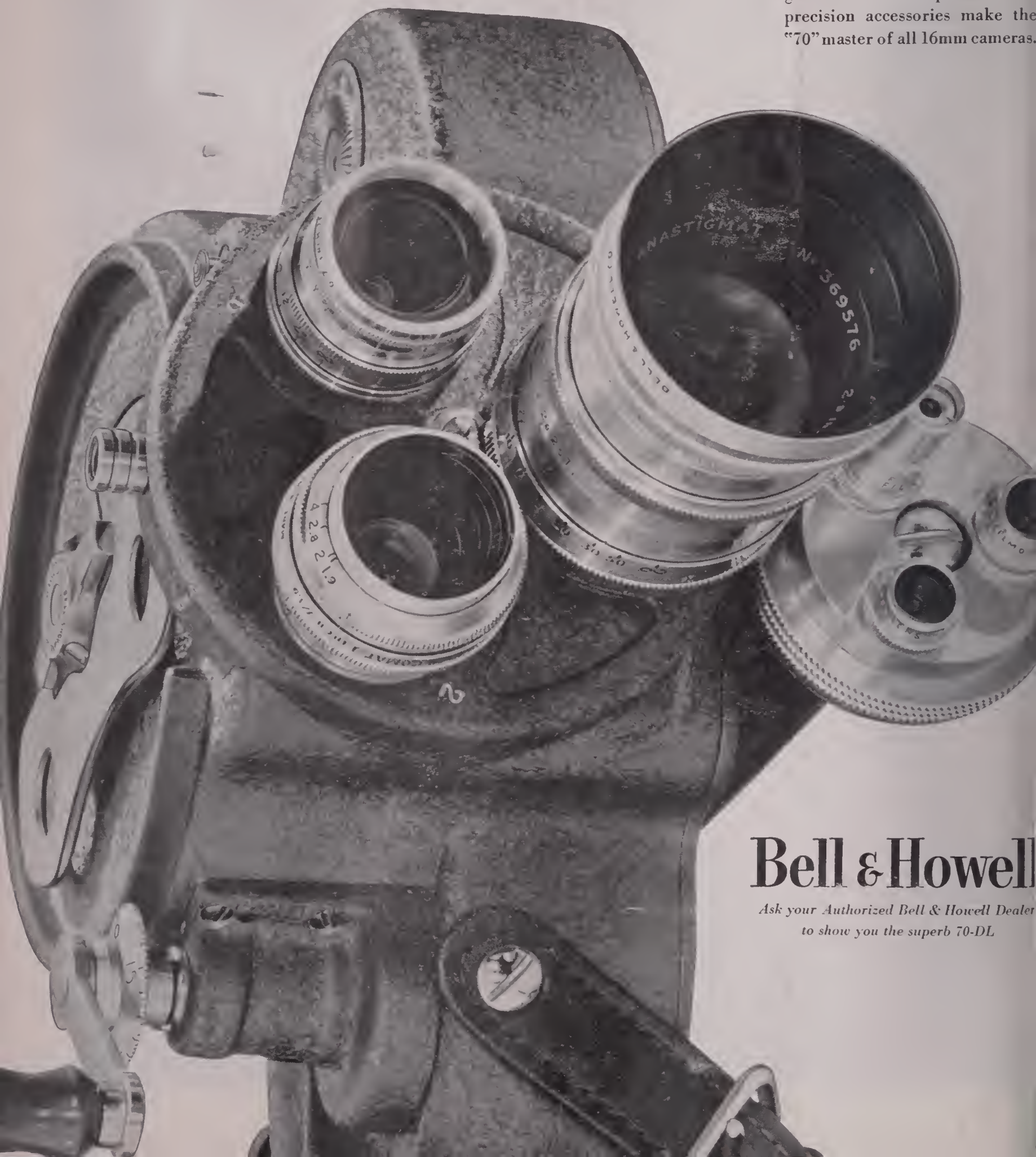
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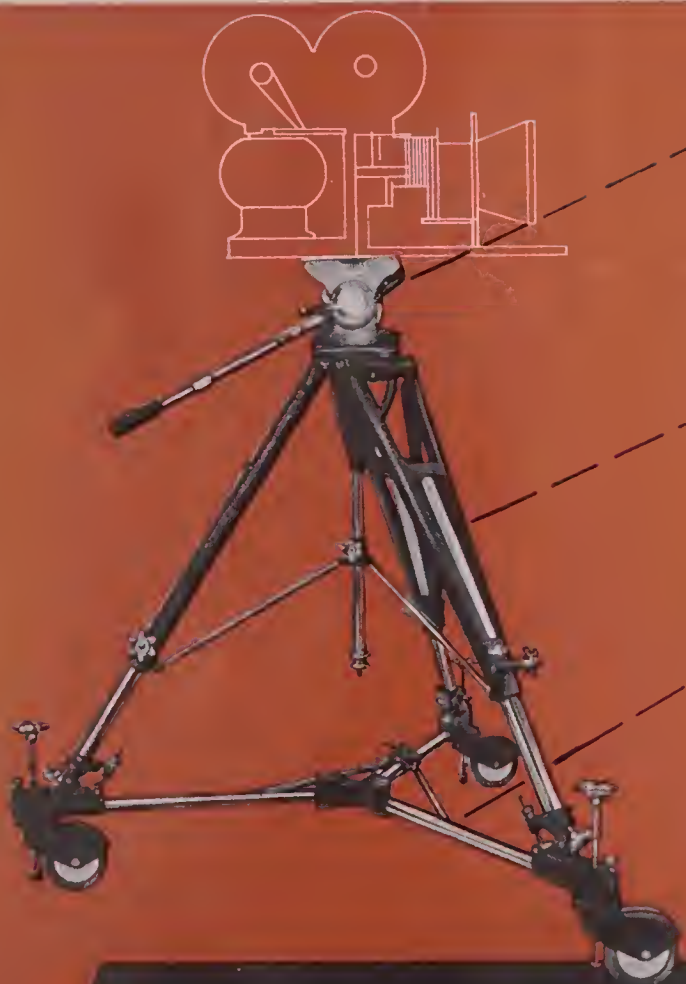
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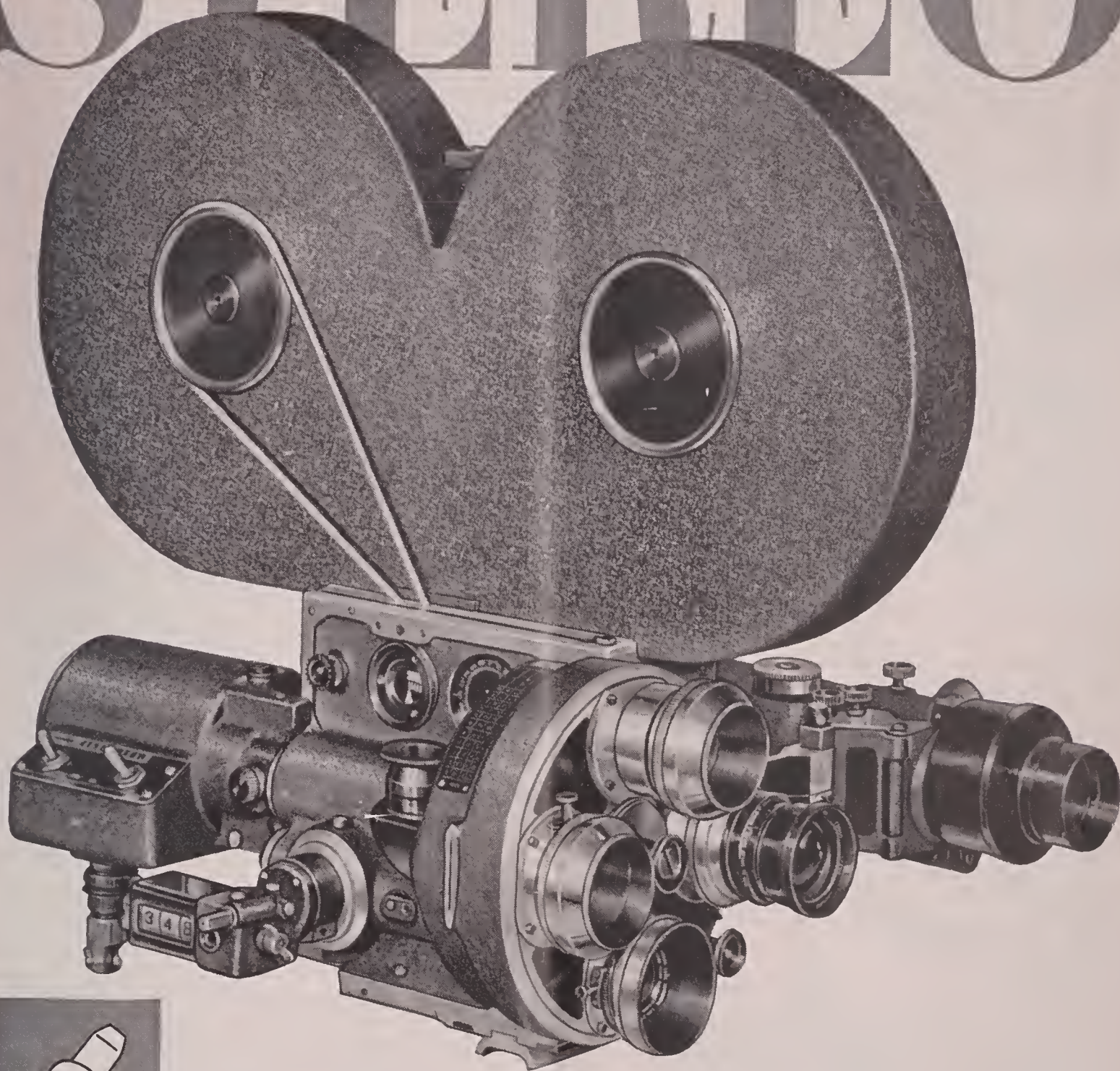
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THE MAGIC WORD...

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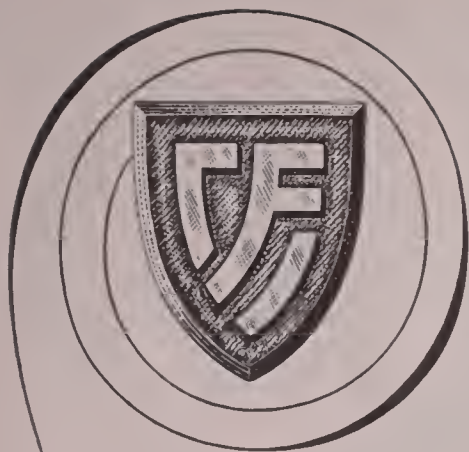


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AUGUST • 1953

NO. 8

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ON THE COVER

INTERESTED Londoners gathered around the camera reflect varied reactions as they watch a scene for Paramount's "Knock On Wood" being filmed at entrance of Waterloo rail station. Directing the Technicolor photography is Wm. N. Williams, ASC, (seated left of camera) whose interesting story about the assignment appears in this issue.—Photo by John Hardman, London.

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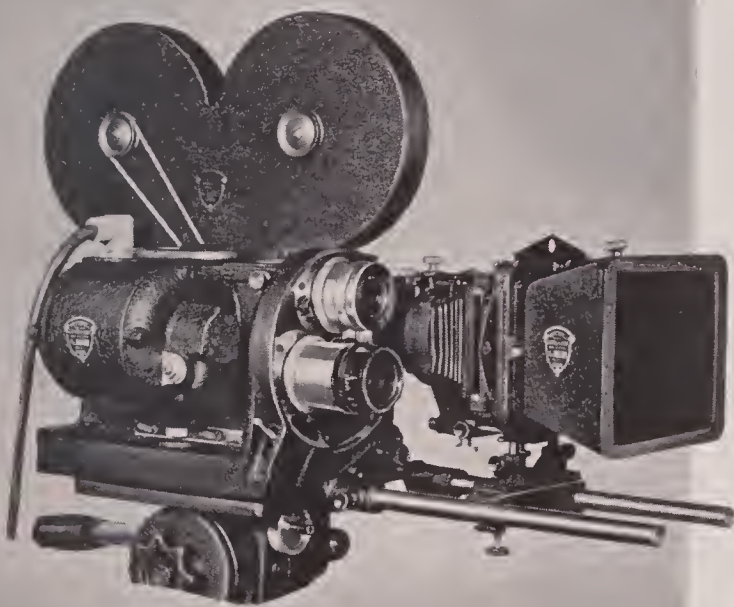


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Hollywood Bulletin Board



ASC PRESIDENT Arthur Edson introduces speaker George Sidney at the ASC's July Meeting. Sidney is president of Screen Directors Guild, whose board of directors were guests of honor.



ALSO PRESENT at speakers' table were (r to l) screen directors Lesley Selander, King Vidor, and Reuben Mamoulian. George Sidney and ASC president Arthur Edson are at far left.



IN TENSE discussion of latest developments in the film industry are (l to r) John Arnold, of MGM; Fred W. Jackman, ASC executive VP; and screen directors Frank McDonald and Robert Wise.



FOR GLENN KERSHNER, ASC, the July meeting was also a birthday party. He was presented a candle-decked cake marking his 69th year. With him are Watterson Rothacker (l) and Lionel Lindon, ASC.

The entire membership of the American Society of Cinematographers, numbering more than 250 industry cameramen and associates, have signed the ASC's non-Communist affidavit. Statement provides declaration that signers are not members of the Communist party; that they do not believe in, are not now a member of, nor support any organization that advocates overthrow of the U. S. government.

John Arnold, ASC, MGM's executive director of photography, with the studio for over 36 years, is considering leaving the company. Arnold has been one of the key men in MGM developments leading to new techniques in film production in the present transition to wide-screen and 3-D.

CinemaScope is changing a lot of things at 20th Century-Fox—even the old familiar term for film photographers,

reports *Variety*. The cameramen who long have been known as cinematographers now are called Cinema-Scotographers at the studio.

Virgil E. Miller, ASC, on August 6th, observed his 40th anniversary in the motion picture business by attending a studio showing of his first wide-screen photographic effort — Hal Bartlett's "Crazylegs, All-American."

Miller filmed the memorable "Navajo," which was an Academy Award contender last year.

Joseph Brun, ASC, using the only Eclair 35mm camera in this country—which he owns, incidentally—is directing the photography of the "Inner Sanctum" series of TV films in New York City.

Fox Movietone is producing a CinemaScope newsreel. Head cameraman is Jack Painter, chief of the Movietone

newsreel division, who uses an Eclair Camerette fitted with a Cinema-Scope lens.

William Skall, ASC, was at Annapolis last month shooting background plates for a forthcoming Allied Artists' production.

Three members of the ASC passed away during the past month. They were John Clifford Smith, Clyde DeVinna, and Harry Jackson.

John Smith died July 20th following an illness of several years. His last assignment as cinematographer was with MGM. Smith had been a member of the ASC since 1927. At that time he had specialized in miniatures, process and special effects. He began as a travelogue and newsreel photographer in 1916.

Clyde DeVinna died of a heart (Continued on Page 401)

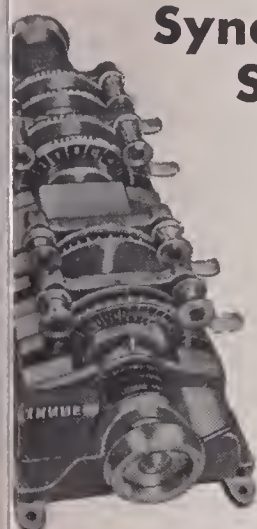
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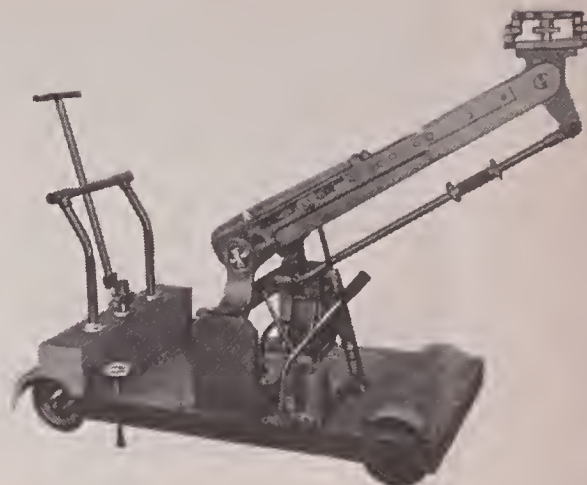
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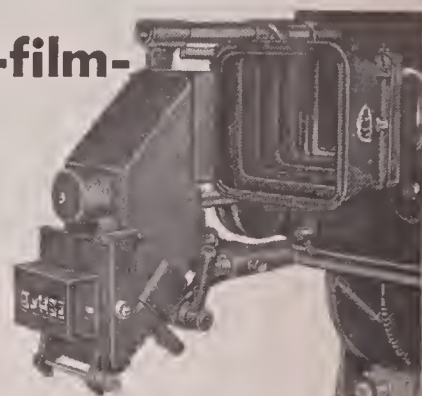
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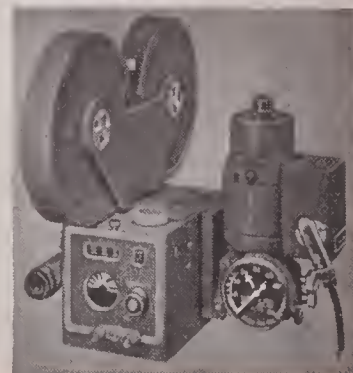
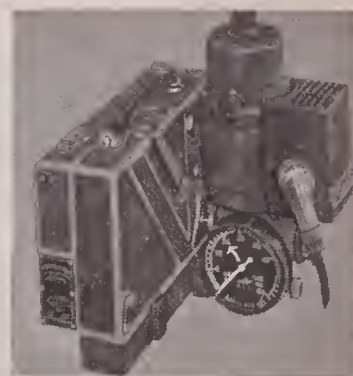
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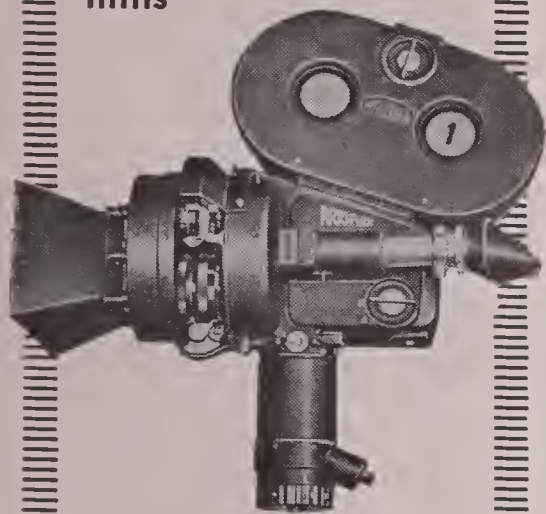
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BOOKS

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The Principles Of Color Photography

—By Ralph M. Evans, W. T. Hanson, Jr., and W. Lyle Brewer. Publishers, Wiley & Sons, New York; 709 pages, \$11.00.

New insight into the scientific complexities underlying color photography is provided by three Eastman Kodak Company scientists in this new book. The volume contains much previously unpublished original work. It begins with a discussion of the response of the eye to light in simple fields and proceeds to systems of color specification and measurement. The authors then discuss in detail photo materials, their color response, and formation of color images. They review the history of color photographic systems, then discuss dyes and their optical characteristics, color sensitometry, duplicating and copying, and color reproduction theory.

In general, the book provides a better understanding of the variety of ways in which color photographs may be made rather than instructing in details of the chemical reactions of any practical color process.

Writing For Television—

By Gilbert Seldes. Published by Doubleday, New York; \$3.00

Here at last is a complete guide written by an expert on every phase of writing for TV. It contains authoritative information for the beginning or seasoned writer on: orientation in the television field; working with machinery and with time; working with the director; the six types of television drama; the non-dramatic program; writing for special audiences; adaptation copy writing; protection and the Code; and the importance of the television commercial.

Case histories, analyses of actual scripts, information on markets and market protocol and a complete glossary of technical terms round out a book which will aid any writer in the preparation of good, saleable scripts and adaptations.

Color Movie Making For Everybody—

By Canfield Cook. Published by McGraw-Hill Book Co., New York, N. Y.; \$3.75.

Inspired by filmers' practical inquires, the author brings to cine cameraists the same kind of help he extended to color movie makers in his

famed lecture courses. The beginner who isn't quite sure of what method or technique to use will find the best in color filming practice outlined step-by-step.

The book contains detailed answers to such problems as: how to get a softer effect in closeups; how to get really blue skies; how to make effective panorama shots; how to bring out copper-red tones of a woman's hair; effective use of running gas in films; how to make titles stand out, etc., etc.

In short, the reader is told how to handle the editing, titling, and projection of color films; how to make money with color movies. An appendix contains useful tables, data and formulas for everyday use.

Method For Determining The Resolving Power of Photographic Lenses—

National Bureau of Standards Circular 533. 27 pages, 17 figures, 13 tables. \$1.00. (Order from Government Printing Office, Washington 25, D.C.)

This booklet provides the photographer with two sets of charts by which the resolving power of photographic lens may be numerically measured with respect to a definite scale of values. It gives a detailed description of the procedure and technique to be followed in order that comparable values may be obtained by different observers in widely separated laboratories.

The average amateur photographer can use this simple objective method with the equipment that he normally has available or may readily obtain, and it may also be applied to the testing of goggle lenses for definition and prismatic power and of telescopes and binoculars for definition.

The range of charts is from 12 to 80 lines/mm. The six charts of one set are high-contrast charts, printed in black ink on a white background; the six charts of the other set are low-contrast charts, printed in gray ink on a gray background. The charts were made by the government Bureau of Engraving and Printing in accordance with detailed specifications relating to width of lines and steps between patterns. In preparing the present booklet, the authors considered the gains that have taken place in the science of applied optics during the twelve years since a previous booklet on the subject was issued, and revised that booklet accordingly.



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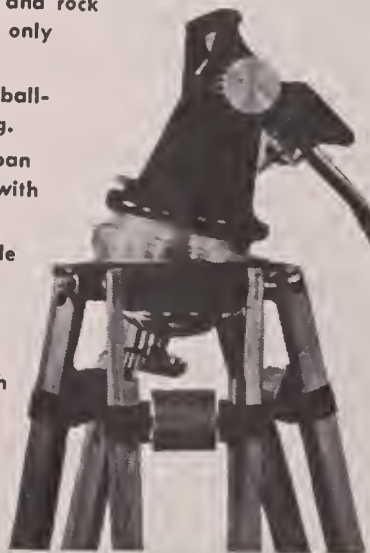
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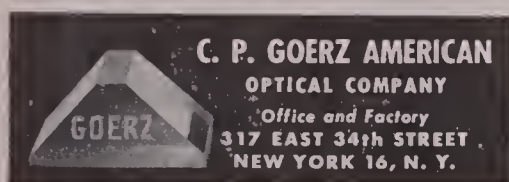
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CLOSEUPS

Notes and
editorial comment

A British industry trade paper recently revealed a poll of theatre-owners of England showed that but 6.2% of British-made pictures were a box-office success; that 9.3% did better than average; 24.5% just average; 22.3% did poor business, and 17.1% were complete boxoffice failures.

This would indicate that in England as elsewhere "volume" production is not the way to a healthy picture industry.

It's a lesson also learned well by Hollywood's major studios, a lesson which has resulted in the big reorganization that has been taking place in recent weeks. From now on the majors will concentrate on fewer but bigger and better pictures, with consequent fewer assignments for cinematographers.

The big question now is: "Can television film production absorb these men?"

★

Following success of extensive tests on DuPont's new polyester synthetic film base, company will erect a new plant for production of the film at Parlin, New Jersey.

For use in production of motion picture film, new product offers the important added advantage of reduction in film thickness, making possible greater footage per reel. Product reportedly also has higher clarity than conventional film bases and appears to have better storage and aging characteristics.

Outstanding characteristic is its great strength and highly dimensional stability, making it particularly well suited for motion picture film. Compared with either cellulose nitrate or cellulose acetate films, the new DuPont polyester has twice the tensile strength and tear strength, and can be stretched more than four times as far before breaking.

Several thousand feet of the new film have been tested and evaluated. The Motion Picture Research Council and several of the major studios and top TV studios have cooperated in conducting these tests.

Initial production is tentatively set for the middle of 1955.

★

Canyon scenes for Walt Disney's new live-action film, "The Colorado Expedition," will have to be shot from rowboats because motorboat propellers kick up water which would be caught by the camera lens.

University of Southern California last month was awarded the first annual Screen Producers Guild Intercollegiate Film Award for the best motion picture conceived and created in the colleges and universities of the United States.

The winning film, "Let Me See," was produced entirely by USC students. Richard Harber and Robert Kiefer are credited with the photography.

The competition is to be an annual affair, according to Carey Wilson, Guild president.

★

Charles G. Clarke, ASC, currently in Europe directing photography for a feature film for 20th Century-Fox, wrote an article for the British industry trade paper, *Kinematograph Weekly* (June 25th issue), entitled "Practical Problems of CinemaScope."

According to Clark, the most important change which CinemaScope introduces is for all workers in the industry to forget the techniques that have been used so long in making pictures for the conventional screen size, and to think of direction and composition best adapted to the new screen proportion. "The big head closeup," Clarke says, "is a relic of the past."

★

When E. P. Hillary and his fellow climber, Sherpa Tensing Bhutia, reached the top of Mount Everest on the morning of May 29th, the pictures Hillary took on the summit were made on Kodachrome film.

★

Personal and professional information about individuals with motion picture production and teaching experience is being compiled by the University Film Producer's Association through its personnel committee.

Purpose of this activity is to establish an information service that could be used for the growth and enrichment of programs of audio-visual production and training. Those who wish to become listed with the committee should write committee chairman Ledford C. Carter, Audio-visual Center, Indiana University, Bloomington, Indiana.

★

Anso has announced it will change the color temperature of Anso Color tungsten film from 3200°K to 3400°K to meet the requirements of the photo-flood light source. The new tungsten films will be produced in 35mm and roll film sizes.

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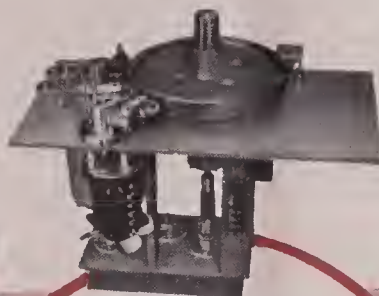
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Fairchild Model 126 Professional Tape Recorder (below) with patented Syncroll Drive and Pic-Sync Attachment (right) installed within console.

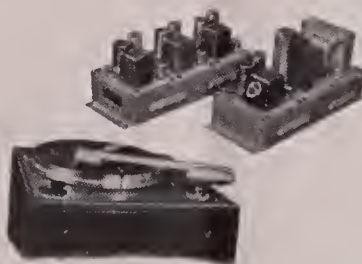


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3-D and wide-screen NEWS ROUNDUP

A television camera that will photograph 3-D pictures 1000 feet under the sea has been developed by the British Admiralty.

Matching of the focal length of the two projection lenses is one detail that must be rigidly controlled for good 3-D results. If it is not, one eye will see a larger picture than the other, editors of *Showmen's Trade Review* recently cautioned its readers. "For every 2% difference of focal length, according to STR, there will be a difference of 2% in the measured width of the picture at the screen.

3-D has had its short but merry life, according to W. R. Wilkerson, publisher of *The Hollywood Reporter*, motion picture industry trade paper.

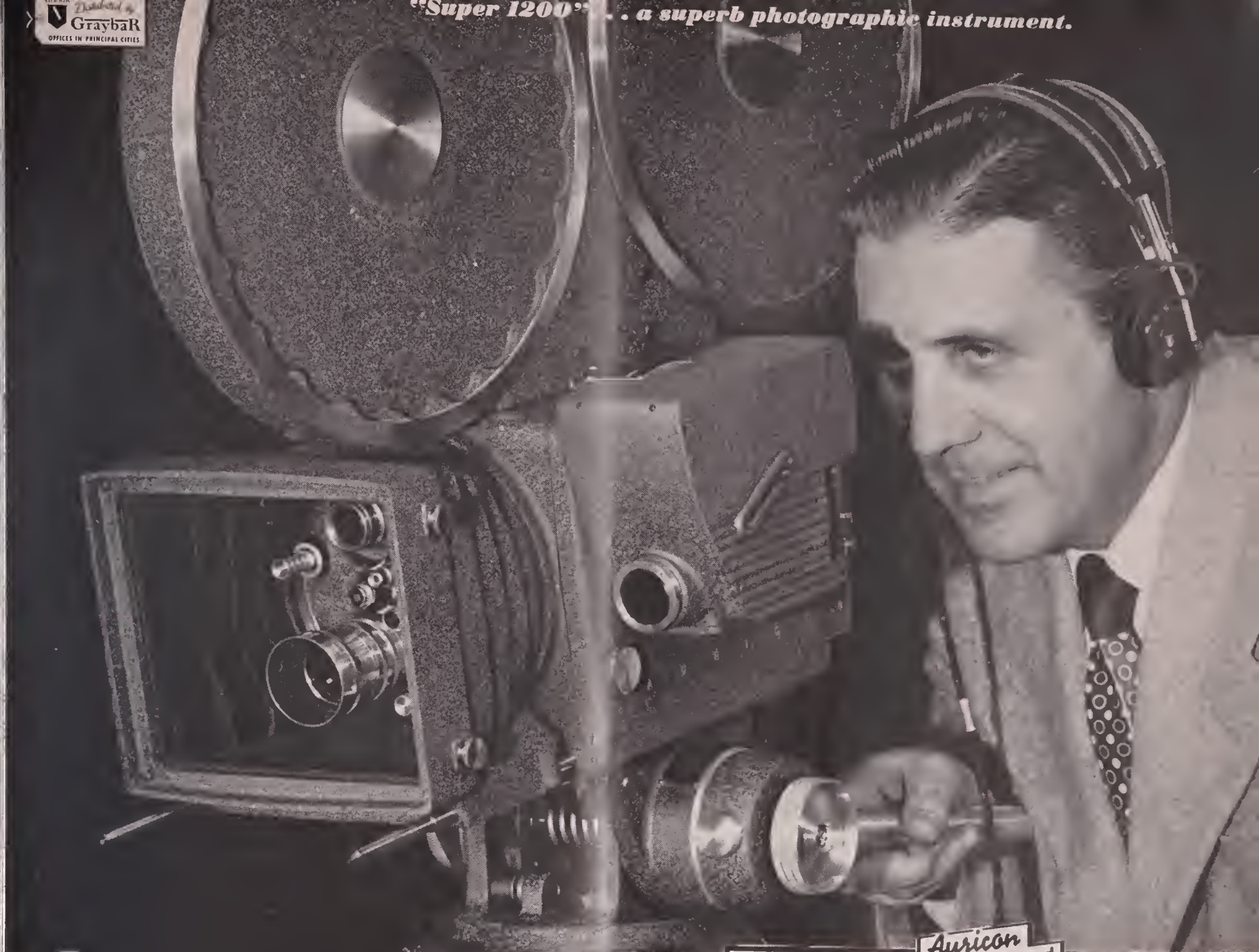
"Of the five 3-D films currently in work," says Wilkerson, "at least three have been in some form of production for months. Commitments have been made . . . that demanded the studios go through with them. Other than this we don't believe even these five would be on the stages."

The novelty has brought millions of people to the boxoffice, Wilkerson said, and in his opinion 3-D "gave the industry a good goose. It got it into creative action. It changed a lot of thinking that now will present a better picture, a larger picture—but not 3-D."

And a columnist in the same paper, Mike Connolly, had this to say in the same issue: "We hear that Columbia's throwing away its 3-D print of 'Miss Sadie Thompson' and releasing it only in wide screen."

Warner Brothers last month announced the studio's new *WarnerSuperScope* process, which is a wide-screen photographing and projecting process which provides a picture up to 2.66 to 1 ratio. The studio stated that six major forthcoming productions would be photographed in the new process by the Warner all-media camera in 3-D and 2-D as well, providing prints in WarnerColor to fit every wide screen installation now in use or contemplated for the future.

In MGM's 3-version of "Kiss Me Kate," cinematographer Charles Rosher, ASC, demonstrates some remarkable dolly shots—sharp with precise convergence.



16MM SOUND-ON-FILM CAMERA

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with new Model "CM-74A" features . . .

During picture exposure, your film runs through the New Auricon "Super 1200" Film-Gate with the light-sensitive film emulsion accurately positioned on jewel-hard Sapphire surfaces, an exclusive Berndt-Bach feature (U.S. Patent No. 2,506,765). This polished Sapphire Film-Gate is guaranteed frictionless and wear-proof for in-focus and scratch-free pictures, regardless of how much film you run through the camera!

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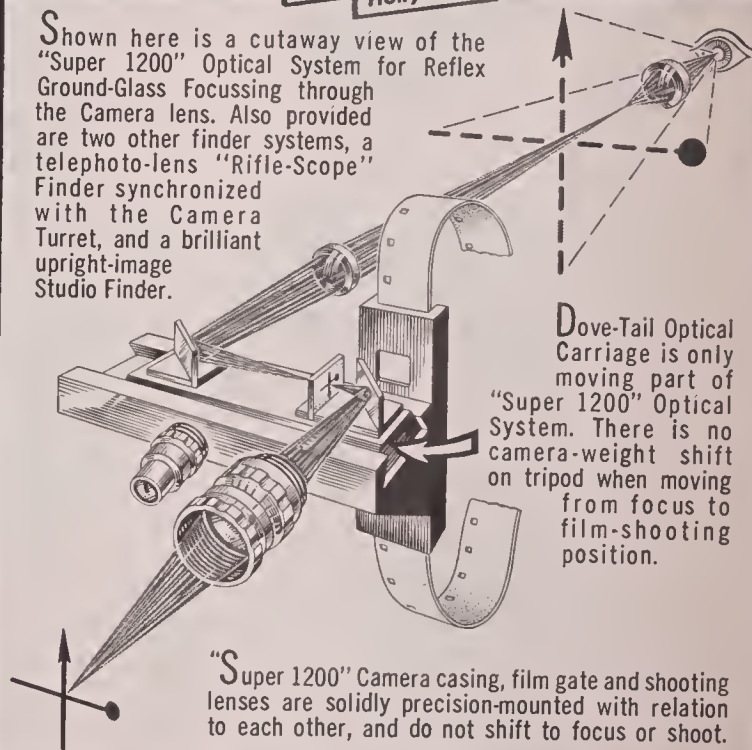
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Shown here is a cutaway view of the "Super 1200" Optical System for Reflex Ground-Glass Focussing through the Camera lens. Also provided are two other finder systems, a telephoto-lens "Rifle-Scope" Finder synchronized with the Camera Turret, and a brilliant upright-image Studio Finder.



Dove-Tail Optical Carriage is only moving part of "Super 1200" Optical System. There is no camera-weight shift on tripod when moving from focus to film-shooting position.

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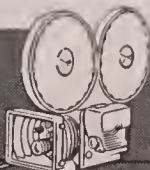
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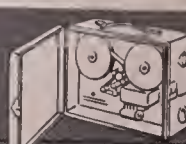
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Arthur Edeson Elected President Of American Society of Cinematographers



ARTHUR EDESON

ARTHUR EDESON, last month, was elected president of the American Society of Cinematographers to fill the unexpired term of Charles G. Clarke who had held the office since last April.

Clarke, whose continued assignments overseas for 20th Century-Fox studios have made it impossible for him to personally serve the Society as its president, requested the ASC board of directors to replace him.

Thus, one of the Society's charter members who until now had steadfastly avoided nomination for the organization's presidential chair, agreed to head the Society which he helped found 34 years ago. Before his elevation to the ASC presidency, Edeson had served for a great many years as a vice-president. As a result, he is eminently qualified to carry on as head of the one organization which is perhaps the most renowned of all Hollywood motion picture technical groups.

Arthur Edeson first entered the motion picture business in 1910 as a portrait photographer. Later he became a cinematographer at the old Eclair Studio at Ft. Lee, New Jersey. While on the east coast, he had become active in the nation's first organization of cameramen—the Cinema Camera Club. A few years later, when he moved to Hollywood, he was a leading figure in the affiliated west coast organization, first known as the Static Club and later as the Cinema Camera Club of California.

In 1919, when this organization was reorganized to form the American Society of Cinematographers, Arthur Edeson became one of the original 15 char-

ter members. Of these, only three besides Edeson are still living.

Edeson, incidentally, photographed some of the most memorable films, both silent and sound, of cinema history. Among his most outstanding silent films were three of Douglas Fairbanks, Sr.'s finest: "The Three Musketeers," "Robin Hood," and "The Thief of Bagdad." All three pictures received the industry's Gold Medal Award, the first annual recognition given films which set the pattern for the annual Academy Awards, now presented yearly for the best pictures and best artistic and technical accomplishments.

Among Edeson's sound-film photographic achievements are "In Old Arizona" with Warner Baxter—the first all-outdoor "talkie"; "The cockeyed World," one of the greatest boxoffice successes; the original "All Quiet On The Western Front" — all-Academy Award winner of that year; "The Big Trail," another Academy Award winner which Edeson photographed in 70mm Granduer—Hollywood's first wide-screen process; and "Mutiny On The Bounty."

He also photographed some of the best-remembered "horror" films, such as "Frankenstein," starring Boris Karloff, and "The Invisible Man," with Claude Rains. Later he gave his rare photographic touch to such well-remembered hits as "Ceiling Zero," "Submarine D-1," "They Drive By Night," "The Maltese Falcon," the battle scenes for "Sergeant York," and the Academy Award winning "Casablanca." These in addition to a number of Technicolor musicals.

Edeson believes ASC cinematographers will assume more and more importance in the production of films for television because of their extensive experience.

"Making dramatic pictures on film for television," says Edeson, "is a great challenge to motion picture cameramen. Using proper techniques plus lighting with dramatic mood should make these pictures comparable in pictorial quality to what we see in motion picture theaters today.

"This can be accomplished with the cooperation of all departments involved in producing the TV film show. We experienced difficulties similar to those the camera crews often encounter today when sound was first introduced; but the difficulties were soon overcome and neither picture nor sound quality suffered when all united in team work toward a common goal."

(Continued on Page 406)



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THREE-DIMENSIONAL or stereoscopic photography has certainly given the cameraman a new dimension in which to work. In a very real sense he has become a sculptor instead of a painter. His work now has a "plasticity" and realism far beyond what can be realized with "flat" photography. If he has suitable camera equipment, this new dimension is completely under his control. He will be able to obtain exactly the results he wishes—at least as they will be viewed from the best positions in the theater. He must, of course, have equipment which can do what he wants done, and which will not continuously be imposing its limitations upon his decisions. Then, of course, he must know how to control this equipment in such a way as to obtain the desired results.

Stereoscopic cameras, generally, have two controls in addition to those found on other motion picture cameras, and these two govern the third dimensional effects which can be obtained. One of these controls the "convergence" or the direction in which the cameras point. The other adjusts the "interaxial spacing" or the distance between the two lenses.

Many still stereoscopic cameras have lens axes parallel. There is then no need for the photographer to worry

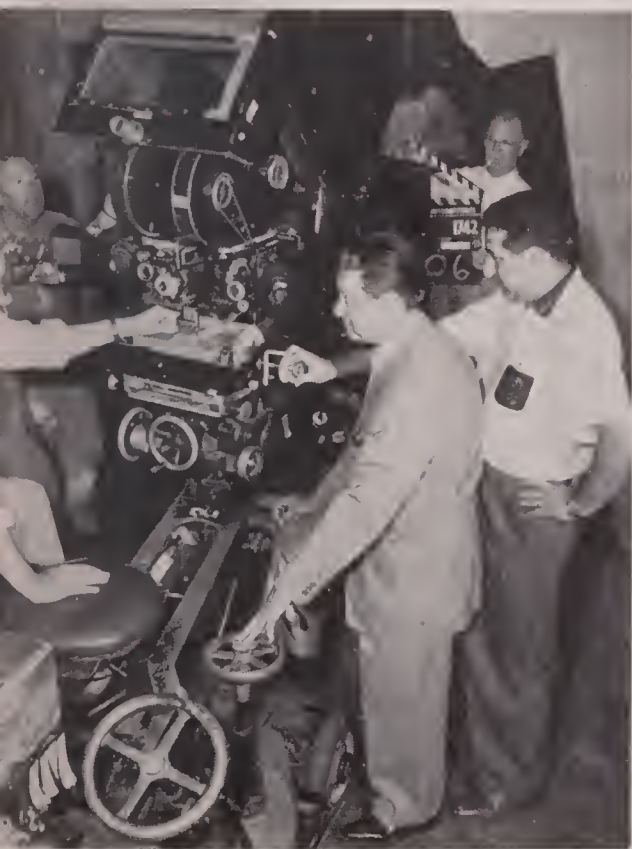


THE MOTION PICTURE Research Council 3-D calculator, which enables a cameraman or his assistant to rapidly determine proper camera settings to achieve the perspective and stereoscopic depth necessary to acceptable 3-D cinematography.

The Motion Picture Research Council 3-D Calculator

By ARMIN J. HILL

Staff Physicist, Motion Picture Research Council, Hollywood



MAURY GERTSMAN, ASC, (center) uses the Research Council calculator as a quick means of determining proper convergence and interaxial settings when shooting with Universal-International's 3-D camera—shown here on set of U-I's "The Glass Web," starring Edward G. Robinson.

about convergence. However an equivalent of convergence is introduced in the printing and mounting of the stereoscopic pair. There are many reasons for not following this method in motion picture photography, among them being the desirability of keeping the control of convergence directly in the hands of the cameraman. Therefore it is now general practice to have this control on the camera, and to process and project the picture pairs in such a manner that the "plane of convergence" in front of the camera coincides with the plane of the screen in the theater.

Essentially the convergence fixes the position of the scene relative to the "window" or plane of the screen in the theater. For this reason the position of the plane of convergence must be known in order to obtain the best composition in the set. Furthermore, any objects which are between the camera and this plane will appear foreshortened

in the theater, and must receive special consideration if they are not to appear unnatural in the projected scene.

The control of the depth dimension is primarily in the interaxial spacing. When correctly set, perspective and stereoscopic depth are balanced. Figures appear to have natural proportions, and the depth effect generally is natural and pleasing. However, distortions may be desirable for special effects. An increased interaxial spacing, for example, will make the figures appear "stretched" or elongated in depth. They may also appear to be diminished in size. Stereoscopic depth carries back farther into the scene than would be expected for a judgement of perspective only. Therefore people moving away from the camera appear to move faster than normal and decrease in size too rapidly.

On the other hand, decreasing the interaxial spacing in general makes

(Continued on Page 398)



FILMING a unique dolly shot for "Packaging . . . the Third Dimension" with a Bolex 3-D camera mounted on conveyor belt. Camera and operator move progressively away from machine as folded cartons emerge from it and move toward him.



FRAME ENLARGEMENT of the Bolex 3-D film, showing the twin stereo images as they appear in the space of a single frame of 16mm film. The projected 3-D picture is almost square in format and requires Polaroid glasses for viewing by spectators.

3-D In Industrial Film Production

Using Bolex Stereo, Academy Film Productions, Inc., is making 16mm industrial and business films in three-dimension and color.

By BERNARD HOWARD

President, Academy Film Production, Inc., Chicago

A THREE-DIMENSIONAL motion picture in color and sound, believed to be the first 16mm industrial or business film in 3-D exhibited anywhere was given its premiere showing recently by the sponsor, Stone Container Corporation, at the opening of the National Packaging Exposition in Chicago.

The production, "Packaging . . . the Third Dimension," takes the viewer on a tour of the Stone Container plant, shows how corrugated boxes are designed, formed, printed and used.

The film was produced by Academy Film Productions, Inc., makers of industrial and television films. It was photographed with a Bolex 16mm camera fitted with the new Bolex Stereo attachment. This method employs but a single 16mm film on which the dual images appear side by side in the space of a conventional single frame. The pictures, which are almost square in format, are screened with a single 16mm projector equipped with the Bolex 3-D projection lens.

This method differs from conventional Hollywood 3-D systems which employ two cameras, two films, and two synchronized projectors. As with Hollywood 3-D feature films, "Packaging . . . the Third Dimension" requires Polaroid glasses for viewing.

Before beginning the production, we had experimented for a number of months with Bolex stereo before attempting to interest a client in making a 3-D film. We had found the Bolex system extremely practical—in my opinion the only practical and economical method devised thus far for making three-dimensional 16mm non-theatrical motion pictures.

With Bolex stereo there are none of the problems of working with two films and two cameras, of interlocking two projectors, of trying to match brightness with two projectors, etc.

During production, our greatest problem, perhaps, was light. Like every producer of 3-D films, we had to consider

the loss of light occurring in projection due to the Polaroid viewers. Also, there was the matter of the maximum f/2.8 opening of the Bolex Stereo taking lens. And finally, we had also to consider the relatively slow speed of Commercial Kodachrome film.

To add to all this, we couldn't draw as much current as we wanted from the power lines of our client's plant for fear of reducing the current required to operate the company's giant box making machinery. Nor could we use a generator within the plant because of the exhaust fumes. And we had to operate too far from any street where a cable might be run to a portable power generator.

Complicating the situation further was the Bolex stereo taking lens. It offers tremendous advantages in that it is fixed focus; everything from 3½ feet to infinity is sharp. And no follow focus problems. But, when using this lens in a huge factory having tremendous depth, one must either block off or black off—block off the shooting area to confine the shot, or black off the background to hide it, or light it up.

The client insisted that we show as many machinery units as possible in each shot of packaging production. It became our problem then to picture in 3-D the *vastness* of the Stone Container operation. To do this, we could neither block off or black off the machines. We had to light 'em up!

In its Chicago plant, Stone has an unusual line of five large printer-slotters. These machines print and slot corrugated boxes, ready for folding, and stretch across an area of approximately 175 feet. The big problem here was that we couldn't use any overhead light, and to use floor lamps alone would not give us sufficient coverage. The client compromised and permitted us to block off two of the machines, materially reducing the amount of area we had to light. The scene now comprised three machines and a wall for background.

To light it we brought in two 10,000 watt projection lamps. These were mounted near the camera and set to project light on the two most distant machines. The machines closer to the camera were lit with our regular lights—7 bunch-lights using reflector spots and giving 3,000 watts of light each.

Another major lighting problem was encountered when we moved to the company's huge paper roll room, 40 feet high, 80 feet wide, and 300 feet in length. Here were stored



BACKGROUND sound effects for the production were recorded on quarter-inch magnetic tape. Checking the sound volume is author Bernard Howard, who directed the picture. Looking on is cameraman Stan Vrba.

about 2000 rolls of paper, weighing close to 7000 pounds each. Here was to be staged one of our most dramatic shots—the title and opening shot of the picture. The client's art department had fashioned the words "The Third Dimension" in raised letters painted yellow, and mounted them on the side of one of the huge rolls of paper. Because this was to be the opening shot of the film, we wanted it to embody everything that 3-D could give it—projection beyond the stereo frame, and depth.

The operator of the huge overhead crane was to come zooming down a valley of 25-foot high stacks of paper with

(Continued on Page 400)



THE BOLEX camera equipped with the Stereo attachment is mounted high on a parallel for a long shot.



TYPICAL lighting setup for a medium shot of a printer operation. Regular 110-v current supply was used for lights.



NOVEL setup for opening title of picture. On screen, roll of paper drops through the stereo frame into audience.

Filming TV Westerns In Real Western Locales

Old-west museum provides story
idea for unique TV series being
produced in Tucson, Arizona.

By CHARLES W. HERBERT, A.S.C.



BETWEEN TAKES for "King of Tucson," first in a new TV series, actor Dick Arlen, who plays Rawhide Riley, relates an experience with director of photography Fred Jackman, Jr., ASC.

ON LOCATION at Old Tucson movie set constructed earlier by Columbia Pictures outside Tucson, director Sam White (under umbrella) rehearses a scene for "King of Tucson."



REFLECTORS are used here to augment sunlight in shooting climactic action of rangers attacking villian's hideout. Locations such as this are but a short drive from Tucson, Arizona.



LAST MONTH, an enterprising film production crew braved temperatures ranging up to 125 degrees daily to photograph the second in a series of new TV films in Tucson, Arizona.

This new western-picture-making activity is not a Hollywood enterprise, but a local one developed by a group of Tucson men who believe in the future of Arizona and particularly Tucson as a picture-making center for film stories having a western locale.

During the years the motion picture industry was growing to major proportions, the vast opportunities in the new entertainment field were being considered also by others beyond the con-

fines of Hollywood. Embryonic producers in other western states and communities began to make a bid for a slice of the motion picture business, but few if any ever got beyond the organizational and trial stages.

Arizona, because of its wealth of scenic location sites and its climate has shared in the Hollywood production growth as a locale for many "westerns," and while some sporadic local production was begun, it remained for television to give new impetus to film production in Arizona.

Today, Tucson, Arizona, is again in the motion picture limelight, as Rawhide Riley Productions of that city buzzes with activity producing its first series of six half-hour westerns for the video screen. Heading this new TV film company in association with this writer is Tom Bailey, who has been turning out western fiction and factual stories for "pulp" for many years, using Tucson as a base for pleasant winter operations. Bailey knows the country and the people, and he knows there is a great amount of subject matter right at hand, easy to develop into film stories.

In an earlier association with this writer, producing quarter-hour documentaries, Bailey's trail led to many far corners of the state. Two years ago when we decided to enter film produc-

tion with a TV series, we began a search for "the peg" on which to hang the series—something that had a simple but plausible tie-in for each episode. Considering how fast television can eat up films, the "peg" had to be a solid one—one that would endure indefinitely.

We found just what we had been searching for one day when we walked into the Barbershop Museum of the late Val Kimbrough at Benson, Arizona. Kimbrough had been a real westerner—a cowboy and rodeo hand. But an unlucky break put him on the ground for keeps, and he took up barbering as an easy way to make a living.

Earlier he had become a great collector of Indian relics and mementos of early-day western life. Now in his spare time he continued to explore the surrounding country for relics. He put his prized collection on display in his barber shop. It soon outgrew a small showcase and began to spread over one wall of the shop. Kimbrough began to pick up relics of old pioneer days from surrounding ranches; he decided he would collect and preserve these mute reminders of early-day history along with his Indian relics. His museum was fast becoming famous and people now were coming to him with valuable items they wished to contribute to the collection.

There was an interesting history behind almost every relic, be it pistol, spur, arrowhead, etc.—things that often become a focal point in the average western story. Here, then, was the fountainhead from which each tale in our TV series should spring. We saw the general pattern as follows: We open each story in the Barbershop Museum where on the walls are all kinds of guns, spurs, rifles, saddles, ox yokes, etc. A greenhorn kid comes in for a haircut. He singles out one of the relics—a pair of pearl handled revolvers—and asks about them. The barber begins his yarn and the scene dissolves into the first scene of the story. When it ends and the barber releases his youthful customer from the chair, he says: "Next time you come in I'll tell you a story about that pair of spurs up there that will really make your hair stand on end!" This line reminds that there is another story to come the following week, and serves to build interest in the series.

So much for the story line.

Raymond Hatton plays the barber and Richard Arlen plays the role of the hero, Rawhide Riley. Supporting them are Larry Olsen, Leonard Penn, Paul Howard, and a score of Tucson local talent.

Fred Jackman, Jr., ASC, is director of photography, assisted by a staff of

-- (Continued on Page 396)

EACH EPISODE in "Rawhide Riley" TV film series begins in this early-day Barbershop Museum at Benson, Arizona. In role of barber is Raymond Hatton, who spins yarns about the different museum pieces on display in his shop.

THERE'S A thrilling story connected with every item in this vast collection in the Barbershop Museum, and these furnish endless material for the "Rawhide Riley" series. At close of each episode, the barber invites his customer to return again, promising to tell a more interesting story about still another museum piece.

—Western Ways Photos.





A BUSY MOMENT in the WTVJ newsroom. The librarian screens film with a B&H projector, while the editor works on a news story. In the background a cameraman talks with the news writer and gives him facts on the filmed story.

NEWS DIRECTOR of WTVJ's award-winning news department is Ralph Renick. A University of Miami graduate, Renick was first to receive the H. V. Kaltenborn Fellowship awarded for research in the communications field.



Covering Spot News For Television

WTVJ, Miami, has won two national awards for TV news coverage. To date the station has turned out almost a million feet of 16mm newsreel film.

By RALPH RENICK
News Director, WTVJ, Miami, Fla.

A GREEN AND WHITE sedan moves through the streets of metropolitan Miami. Suddenly through the car radio speaker, a voice says: "Car 975, a '317' at Flagler Street and 18th Avenue." Its a code police call which the sedan is equipped to receive.

The driver quickly reaches down and turns a knob on the dashboard. Immediately a red light atop the vehicle starts to flash. The driver steps on the accelerator and within minutes he comes to a stop at Flagler and 18th.

At the intersection are two automobiles, twisted and torn out of shape. A bicycle is wedged underneath one of the cars. Two boys lie sprawled on the pavement with deep gashes in their legs and arms. Bystanders watch as emergency workers begin first aid treatment.

A man jumps out of the sedan with the flashing red light. In his hand is a 16mm camera. He begins taking pictures, filming the happening for Miami's television station WTVJ.

The presence of the news cameraman at the scene of the wreck is no accident.

Two WTVJ news cars equipped with police radios enable the station's cameramen to be on-the-spot at Miami news events within minutes after police or fire departments are notified of the happening.

Each vehicle is assigned a regular squad car number by Miami's Division of Communications. Whenever police or firemen are summoned to any major happening in Greater Miami, a special call is dispatched via radio to car 975 or 976. Those numbers are given WTVJ's news-gathering vehicles.

The station's coverage of local and state events has been recognized locally and nationally. Video viewers in south Florida look to channel 4 to supply them with motion picture coverage of the day's happenings.

Nationally, WTVJ was selected in 1952 by the National Association of Radio News Directors (now the Radio Television News Directors Association) as the station having the best TV news operation. In 1951, that same organization gave WTVJ a distinguished achievement award for television news.

Why the awards? What makes the Miami operation tick? The answer to those questions may be found in the three factors that are responsible for the tremendous success of television news at WTVJ:

(1) The concentration on filming "spot" news. Features are strictly secondary items used to achieve balance on news programs.

(2) Intelligent planning. Knowing in advance exactly what you want filmed means a great saving in money, and also provides more effective pictorial news stories.

(3) Enlightened management — station operators who believe TV news programs perform a real service to the viewers and that this community public service offsets the non-profit nature of a large efficient news operation.

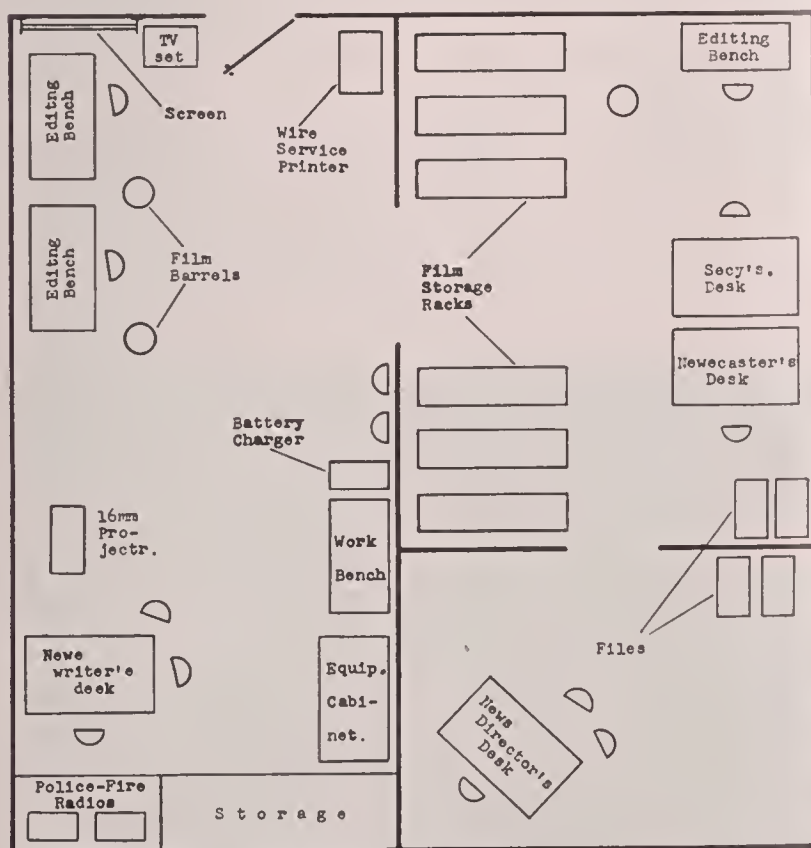
Of these factors, spot news coverage is by far the most important. One of the chief critics of many TV news presentations is that many stations present an overabundance of feature material and fail to pictorialize the real news happenings of the day.

Naturally, those unpredictable events that fall into the spot news category are often terminated in a matter of minutes. Getting a cameraman to the scene in a hurry usually means the difference between getting or missing the story. Thus, a thorough communications setup along with development of hundreds of news "contacts" is essential.

Besides police radios in the two news cars, two other radios are located in the station newsroom. Staff members monitor these calls along with cameramen cruising in the vehicles. Here also, a separate radio speaker is connected directly to the Miami Fire Department by a leased telephone line.

Close liaison with Miami police is obtained by means of a unique tie-up. Each WTVJ news car is also an "Accident Education Car." In addition to their regular assignments news department cameramen film vehicular accidents, which are later shown on a series of four police traffic safety, tele-

(Continued on Page 395)



FLOOR PLAN of WTVJ's TV newsreel department. Three staff and 8 contributor cameramen furnish material for daily newsreel. Film processing lab and printer rooms occupy additional quarters.



NEWS CAMERAMAN Jack Emley with Bell & Howell 16mm camera and Frezzo-lite portable lighting equipment prepares to leave on an assignment. Cars, which are equipped to receive all police calls, are donated by a local car dealer in exchange for advertising.



AT SCENE of an automobile wreck, WTVJ's cameraman is on hand to shoot a record of the action which will be televised the same evening. Footage also is used on a safety program telecast by the station.



HERE WTVJ's news cameraman uses an Auricon-Pro 16mm sound camera to record a luncheon-meeting speech of Governor Herman Talmadge. All film is processed by station, using Bridgematic equipment.



A GLIMPSE behind the scenes of one of the most complete special effects departments outside a major studio. Veteran cinematographer Ray Mercer (right) aids in planning miniature shot.

The Function of Special Effects In Today's Motion Pictures

Special effects give high-budget luster to low-budget productions. In Hollywood, this service is supplied independent producers by studios like Ray Mercer & Co.

By ARTHUR ROWAN

WERE IT NOT for the independent special effects laboratory, a great many films would not have the cinematic embellishments which today mark the best professional motion pictures. This is especially true of advertising and program films for television, and feature films made by independent producers.

The reason is that few if any independent producers not affiliated with a major studio can afford to establish and maintain a complete special effects department. Instead, they turn such specialized work over to professional independent labs, such as that of Ray Mercer & Company, Hollywood.

By employing certain effects, the producer often can materially reduce costs. By using a single optical effect, for example, it is possible to save the cost of sending a camera crew to distant points to photograph a needed sequence. More important, perhaps, is the way optical effects are being used to condense and at the same time step up the quality of TV spot announcements. Today, almost every TV ad film or spot announcement employs special effects.

The function of the special effects laboratory is to create effects in a film which otherwise cannot be done at the time of photography. These include fades and dissolves, which are much smoother forms of transition than direct cuts. Wipes and trick effects are employed to create the desired pace in a picture; they are used in a number of ways in order to gain smooth progression from scene to scene without affecting audience interest.

Some trick effects are employed to
(Continued on Page 393)

MERCER title dept. (lower left) caters to almost every major producer of TV films in Hollywood. Pictured is title card storage room. Lower right: Mercer's aide, Mort Stein (right) discusses use of miniatures in a TV spot announcement with company artist. Listed on board at rear are effects and title orders in work.



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EVER-CHANGING light conditions made constant vigilance a necessity to insure even exposures when shooting on location in London. Here the author (center) readies the camera while Technicolor cameraman Hal Young (left) and director Melvin Frank check light falling on scene.

WHENEVER A FEATURE production calls for substantial filming in two widely separated locations, it is common practice for the studio to split the production unit into two groups. Very often the second unit crew has the most challenging assignment, although not necessarily the most important.

This is especially true where the second-unit is working away from the studio, and particularly when in some foreign country. Here the cinematographer works without the advantages of unlimited studio equipment and personnel; and when he meets with unexpected problems, as he invariably does, the success of the whole second-unit operation often calls for ingenuity and resourcefulness rarely demanded of the camera crew when shooting on the home lot.

This was true of the assignment we recently completed in Europe, where I directed second-unit photography for Paramount's forthcoming Technicolor production, "Knock On Wood," starring Mai Zetterling and Danny Kaye. Obligated for reasons of economy to travel light, we didn't have the booster lighting equipment nor the number of reflectors we'd normally use in Hollywood. And this proved a pretty rough situation when shooting exteriors in London, where fog and overcast is ever-present. Yet we managed to achieve good results.

The sequences on our schedule were filmed in London and in Zurich, Switzerland. In London, we had just one day in which to select locations. The impending Coronation posed two major problems. First, all Technicolor cameras in the British Isles had been

(Continued on Page 390)

Shooting 'Second Unit' In Europe

Some of the experiences encountered by the camera crew that photographed scenes in London and Zurich for Paramount's "Knock On Wood."

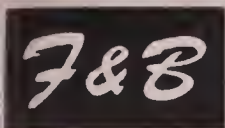
By WM. N. WILLIAMS, ASC



DIRECTOR of photography Williams (right) lines up a shot on location near London with Mai Zetterling and Jon Pertwee, who doubled for Danny Kaye.

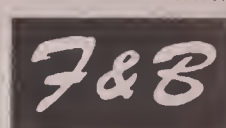


INTERESTED onlookers gathered around camera, partly concealed under canvas shelter (center, background) when company was shooting scenes inside London's Waterloo railway station.

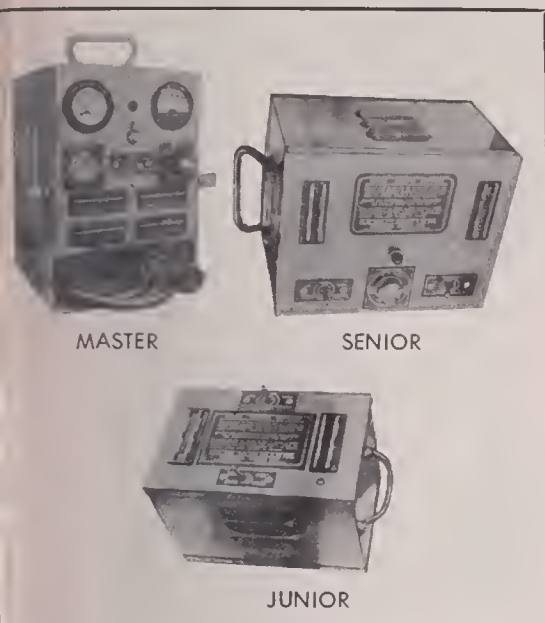


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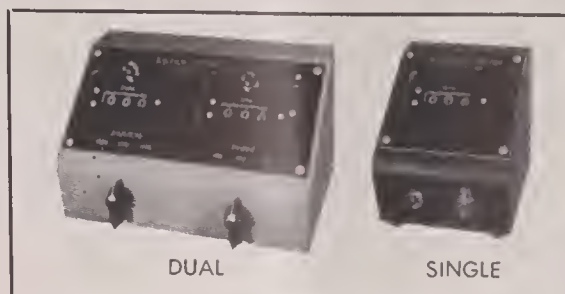
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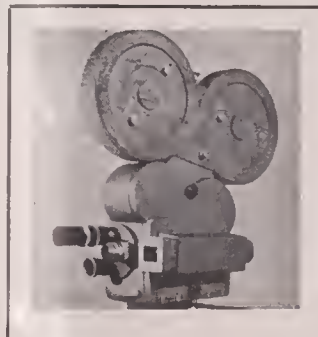
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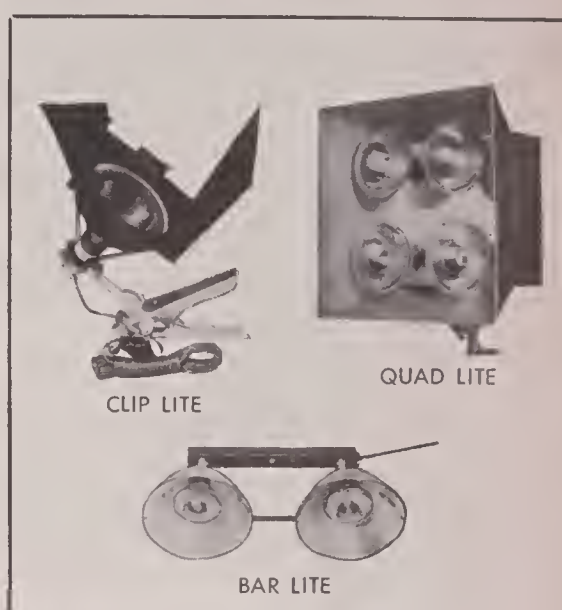
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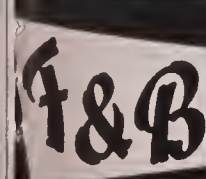
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THE COMPLETE Elgeet Cine Stereo System includes camera attachment (lower left), finder attachment, projection lens with necessary adapter, metalized projection screen, and 8 pairs of Polaroid viewing glasses.



VIEWFINDER unit slips over front element of camera finder, thus adapting it to stereo filming. Here, also, the Elgeet 3-D attachment is shown mounted in place of regular lens.

Elgeet Stereo Attachments Fit Most 16mm Cameras and Projectors

Newest 3-D attachments now make it possible for almost every 16mm cameraist to film and show stereo movies in monochrome or color.

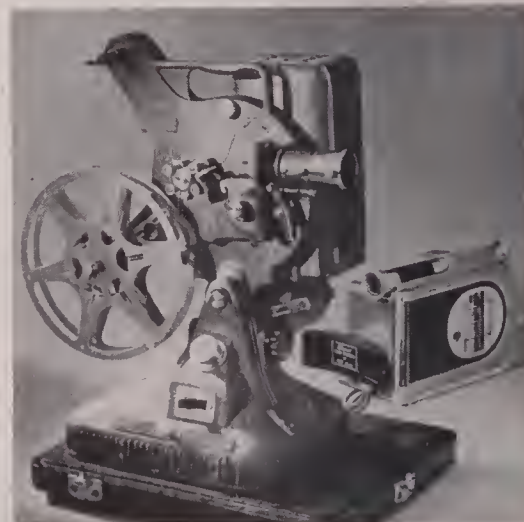
By JOHN FORBES

THE NEWEST ATTACHMENT, which enables 16mm camera owners to make stereo movies, offers the advantage that it is adaptable to any 16mm cine camera that uses C-mount lens—which includes just about every popular make and model. Thus if you own a Bell & Howell, Eastman, Victor, DeJur, Pathe, or Keystone 16mm camera having a demountable C-mount lens, you can employ the new Elgeet Cine Stereo System with your camera to film movies in 3-D in black-and-white or color. And you can show them with your regular projector. As with the Elgeet 3-D camera unit, the company's 3-D projection unit fits just about any 16mm projector, too. Polaroid viewing glasses are required for viewing the projected pictures.

A stereo system for 16mm amateur movies, to satisfy the broadest range of possible users, must meet two basic requirements—it must be as easy to use as normal two-dimensional lenses, and it must be within the financial means of the average amateur. The Elgeet Optical Company, Inc., has met these requirements without sacrificing the quality demanded by the most critical advanced amateur.

The heart of the new Elgeet Cine-Stereo System is, of course, the taking lens. It consists of a 6-element lens system rated at 13mm f/2.8. Light enters through two openings in the front of the housing and is split by a rhomboid prism assembly before passing through the lens system, forming two images

(Continued on Page 394)



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TYPICAL SCENE during shooting of "Tense Moment," author's recent 16mm production. Bob Buckett (left) monitors sound while Bill Garrad (behind camera) focuses on action. Author (foreground) is discussing shot with script-girl, Blanche Smith.

It Takes More Than A Camera

Author's latest effort in story film production illustrates how important are friendly assistance and careful pre-planning in making serious amateur movies.

By ARTHUR H. SMITH

AS AN ADVANCED amateur movie maker, I am dedicated to making serious 16mm films based on carefully-planned scripts. "Tense Moment," my most recent effort, is an example. One thing that I have learned in making films such as this is that "perfection" as we seek it is never attained. No matter how well a picture seems to turn out, careful analysis shows it could have been done better. It sometimes takes a long time to completely lose the bad habits we acquire in our early days of amateur movie making.

Whereas I never used a tripod when first I started shooting 25 years ago, today I never make a shot without the camera on a tripod. Today, I'm not niggardly with film. Whereas in the past I used to let every scene go with a single take, now I shoot a ratio of about 3 to 1. Often a scene is re-shot 5 or 6 times

in an effort to attain perfection. A costly practice—but a good habit where quality results are desired.

As the amount of equipment used increased, the need for assistance in making each new film also increased. In the beginning, all that I needed was a few "actors." In my latest film "Tense Moment," there were eighteen parts to fill. The leading roles were cast with people who had been trained in dramatic work. On the production staff was a cameraman, an assistant cameraman, a sound recordist, a script girl, and two assistants to hold slates, reflectors, move

SHOOTING in tight quarters was a common problem when filming interiors in actual indoor locales. Here the assistant holds clapstick and slate while cameraman prepares to shoot scene.

lighting equipment, handle the mike boom, etc.

As with so many amateur films there could have been a better exposure used here, better composition there, or a better match in pictorial continuity as regards light intensity and sound. I am my own worst critic and feel that I cannot write dialogue worth a torn sprocket hole. The only thing that can be said for certain is that this film is better than my last.

There is one thing that is a drawback to filming amateur story films and that is the attempt to crowd too much work in too little time. For "Tense Moment" I had originally intended to use my home for most of the settings, and had planned to have all the equipment and lights set up for any given shooting-day before the arrival of my cast and staff. However, just before starting to shoot one of my friends offered the use of his home which suited the action much better. To avoid disturbing my friend's home any more than necessary, five shooting days were compressed into four. This meant shooting 30 to 40 sound shots each day.

It took eight shooting days of six to eight hours each to film the bulk of the shots. Additional time was spent making titles and inserts. Fifty-six hours were needed to edit the film.

Equipment used was a Cine-Special camera with sync-motor drive, an Auri-



con blimp, Universal gear head tripod, Auricon RT-80 film recorder, 2000-watt Junior spot, 5 baby spots, 2 No. 4 photoflood double broads, a homemade dolly, and a microphone boom. A clapstick slate board was used to mark the shots as an aid to syncing the picture and track.

Most of the action of "Tense Moment" takes place in a darkened house, hence was shot in low key—which becomes progressively lower as the plot develops. Therefore only a few of the lighting units were in use at any one time. For various effects in lighting, simple cardboard cutouts on wooden frames were placed in front of the spotlights. A venetian blind effect was obtained in two different ways. One setup had the Junior spot outside the house shining through actual venetian blinds. Another time a frame covered with wooden slats was placed in front of a Baby spot. In most cases the source of natural lighting was considered when placing lights. This method makes it easier and quicker to figure out and light the set. For the interior low-key shots, exposure was read at the "hottest" part of the scene and the lens reduced one stop. This resulted in black shadows which fitted the mood of the film.

The plot concerns an escaped killer who is identified to the audience within the first minute of the picture. He succeeds in killing two women and corners a third in an empty house. It is the action showing how this third girl attempts to hide, is trapped and locked in an attic, is almost murdered, but through quick thinking foils her attacker, that makes for the climatic ending of the picture.

(Continued on Page 388)

RUNNING measuring tape on every setup insured needle-sharp focus. While Bob Buckett measures distance for focus, script-girl checks actress Toni Gale on her dialogue.



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Of interest to **MOVIE AMATEURS**

Movie amateurs may convert their silent 16mm films to sound free of charge during August, September and October, when Bell & Howell Company will apply its magnetic Soundstripe free to 400 feet or less of any customer's 16 mm film, when sent in by an authorized B&H dealer.

Soundstripe, when applied to edge of 16mm film, enables movie makers to record their own commentary and music on the film as it is projected by the Filmosound 202 magnetic recording projector.

The sixth annual International Amateur Film Festival of Cannes, France, will be held at the Palais des Festivals from September 5th to 15th. All makers of 8mm, 9½mm, and 16mm films may participate. For information, write: Secretariat du Festival International du Film Amateur, 20 Boulevard de Lorraine, Cannes (A.M.), France.

New resolution test charts devised by the National Bureau of Standards provide the amateur movie maker with an objective means for testing and rating the lenses of his camera. Charts are available in two values of contrast, each containing 12 different patterns covering a wide range of line widths.

Test charts are available from the Supt. of Documents, U. S. Government Prtg. Office, Washington 25, D. C.

"How-to-do-it" clinics on recording magnetic sound movies will be held by Bell & Howell Company in seven cities (Detroit, Cleveland, Pittsburgh, Boston, Los Angeles, San Francisco, and Salt Lake City) during September and October.

Movie makers attending the clinics will learn how to convert 16mm silent film shot at 16 fps to sound movies. The newest accessories for increasing the versatility of magnetic recording will be demonstrated, including B&H's new four-channel monitor-mixer for blending voice and musical background.

There will be demonstrations of recording techniques that lend a professional touch to 16mm magnetic sound movies, with tips on simulating sound effects such as lapping of waves, crackling of fire, "telephone voices," footsteps and the use of commercially

available records for special effects.

The clinics will be open to everyone interested in magnetic sound. Contact your Bell & Howell dealer, or write the company at 7100 McCormick Road, Chicago, for date and location of the clinics.

Eastman Kodak Company has resumed the publication of *Kodak Movie News*, which is scheduled to be issued bi-monthly to amateur movie makers. It will contain five pages of "how-to-do-it" information, and one page of full color reproductions of "Good Shots" by amateur movie makers.

Readers who would like to receive the publication should write to the Editor, Kodak Movie News, Eastman Kodak Company, Rochester 4, New York.

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Metropolitan Motion Picture Club, Inc., of New York City, has announced its schedule of amateur movie contests for 1953-1954. There will be three contests in which a total of \$375 in cash awards will be given.

Club is one of the few which carefully organizes its contest well in advance, and as a result attracts probably the greatest number of entrants of any strictly cine club competition.

Contest chairman is Dr. M. L. Fielding, 2 Broadway, New York 4, N. Y.

American Cinematographer's first 3-D Film Festival has drawn an unusual number of inquiries from abroad. Many ask about eligibility of foreign entries. This is to advise that entries will be accepted from any point on the globe. In all cases, however, the responsibility of getting the film into the hands of the Festival committee rests with the entrant. For one thing, films must be properly shipped and the packages so marked that they will clear customs without difficulty.

TAKES MORE THAN CAMERA

(Continued from Page 387)

An ordinary house cat is an important element in the film, but was hard to control when on the set. For a sequence where it was supposed to place its feet on the wall of a closet and meow toward the attic door, a scrap of meat was tied on a string and held above its head out of camera range to obtain the required action. The cat wouldn't act according to script. The out-takes showing cat and the meat scrap became a great source of merriment to the cast and crew. Finally, over a hundred feet of film was shot before an acceptable take was secured.

The only problem that might be considered out of the ordinary for amateur film editors was a sequence where two girls carry on a conversation through five different shots while one of the girls is apparently playing the piano. This was accomplished in the following manner: The scene was first shot from one angle covering dialogue for the complete sequence. The piano was not actually played during the dialogue shooting. Then each shot was made with its respective dialogue. The dialogue for the complete sequence and the separate shots was recorded on magnetic tape, instead of directly onto film as was the balance of the picture.

The dialogue for this scene was re-recorded twice. First, as dialogue only. Then the second time the complete sequence dialogue was re-recorded with a piano solo from a record dual-channelled, thus supplying background music for the sequence.

In cutting, first the five shots were edited to match the single complete spoken track; then all that was needed was to substitute the dual-channelled sound track for the dialogue track since the claps tick sync mark was on the start of both tracks and served as a cue for matching to the first shot of the sequence.

The first showing of the film was held at a dinner attended by all those who were connected with the production. The film is to have a public showing sometime this month, after which it will be entered in amateur contests and be made available for showings at amateur movie clubs in the San Francisco Bay Area.

An innovation for amateur films is the fact that from the out-takes we made a 100-ft. sound-on-film trailer that will be circulated ahead of the film itself to create interest.

The trailer was cut using the A & B rolls technique because of the additional superimposed titles. However, since the picture itself is presented in a

(Continued on Page 390)

SWAP YOUR ODD SHOTS

with other readers of
American Cinematographer

Need some special footage in 8mm or 16mm, color or black-and-white? Got odd footage or stock shots you'd like to swap? Want to shoot local scenes or subjects for another cine amateur? Then tell them about it in the Odd Shot Column.

Editor:—

I need 16mm Kodachrome footage (preferably single-perforated) as follows: 5 feet, including fadein and fade-out of the Mt. Rushmore National Memorial, at 16 fps. Footage, same specifications, of a large herd of sheep in motion. Will shoot anything in or around Chicago in exchange, or will buy.

—Lew M. Jacobsen,
567 Stratford Place,
Chicago 13. Ill.

Editor:—

I have 16mm footage in color or monochrome on Indian subjects such as cultural pageants, festivals, places of interest, sporting events, lives of people, etc., for exchange for unexposed film or footage of other subjects.

—N. P. Hariharan.
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Editor:—

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Editor:—

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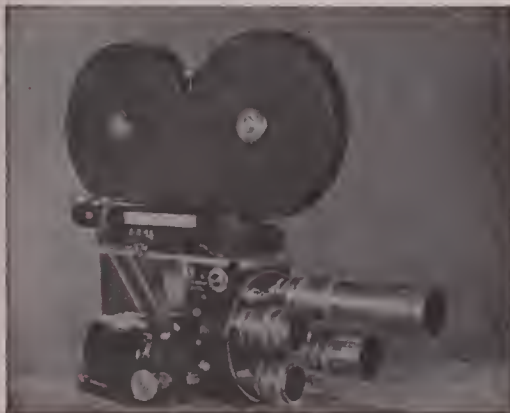
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straightforward manner without flashbacks and because it is episodic in nature it was cut with only a picture and track roll. A fade introduces and closes each of the first two sequences. Then a fadein introduces the final sequence. Two or three dissolves serve as time elapse devices and then a fadeout closes the film. Since the fades and dissolves were in silent shots they were made in the camera. It just happened that it was easier to do this than to cut A & B afterward. If using the A & B system would have been to advantage it would have been used since the additional run through the printer at the film lab costs only about 1½ cents per foot.

Speaking of costs the actual cash outlay for making "Tense Moment" was approximately \$12 per screen minute. The film runs 25 minutes Black-and-white film was used because the black shadows which fit the mood of the film are not too easily and satisfactorily photographed in color, since any dark area falls into blackness losing the grey shades. Also color, unless an attempt is made to keep the shades somber, tends to brighten the mood.

Most of the sound effects were taken from sound effect records, but where these were not available, the necessary sounds were created and dubbed in. For instance, the creaking of a staircase was made by pressing heavily on

a small stool that was rather the worse for wear and creaked on cue. All the effects were matched in the cutting.

In advanced movie making it is obvious that although one person may develop the idea or plot, prepare a shooting script and direct its transformation into a finished unit, still it requires the combined efforts of a group who will go along with and put up with the originator during his oft-times rather frantic moments. It is to these many friends that I wish to extend my thanks and acknowledge their cooperation and assistance. Space prohibits listing all. "Tense Moment" featured Tomi Gale, James McGill and Kathleen Hodges. On the production and technical staff were: cameraman, William Garrard; assistant, Robert Buckett; script girl, Blanche Smith; and technical assistant, Carl Day and Charles Howard.

SHOOTING 'SECOND UNIT'

(Continued from Page 382)

promised local studios for filming the Coronation. We had arranged to use one camera, but we had to finish and get it back to Technicolor in London by May 26th.

The other problem was the Coronation decorations, which were everywhere. Thus we had to search for camera setups that did not include Coronation bunting and flags; and where this was not possible, we had to remove the decorations temporarily—with official permission, of course.

Gathering together a crew of British film technicians, we began shooting early in May. Several men from Scotland Yard were assigned to our company to keep order and clear the way for us whenever we had to shoot on busy streets.

In London we encountered rain and fog about 80 per cent of the time. Shooting scenes under such conditions was touch-and-go. But thanks to the British technicians, we soon learned to adjust our operations to those local hazards. These fellows were accustomed to shooting exteriors where little or no sunshine prevails. The method we followed consisted in preparing a setup and rehearsing the scene just as though we were working in bright sunshine; then, when the director gave us the ready signal, we'd watch the sky and study movements of the fog and cloud masses through a filter. There were always two and three separate layers of fog, and they were constantly on the move. Occasionally the movement was such that an opening occurred and

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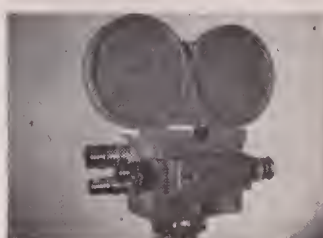
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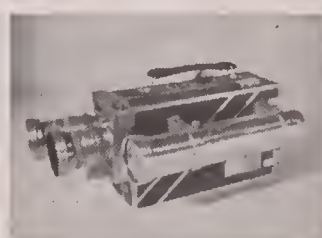
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the sun broke through to shine brightly for a minute or so. It was then that we got our shots. The crew had to be on its toes every minute under such conditions.

It was when making dolly and travel shots that the crew was put to the real test. Because of the ever-changing light, dolly shots were made with an assistant altering the lens diaphragm to suit the changes of light. One assistant held a meter on the light and called out the changes in exposure readings as they occurred to another assistant who altered the lens stop accordingly. In this way we maintained constant exposure on every shot made under such conditions. Often we had to shoot at f/1.0 right out in broad daylight (We were shooting Technicolor 3-strip.)—the stop we used when shooting inside the Waterloo rail station, where the only light came from the skylights overhead.

This latter location, incidentally, was an interesting one. The interior decor is quite somber. There are a number of small shops and station concessions which surround the broad esplanade. Here the only help we had in the way of booster light was two small and battered reflectors on stands, each fitted with a No. 4 photoflood lamp.

Usually our shooting day started in the morning at seven o'clock and did not end until dusk—around 8 p.m. One of the most interesting scenes that we filmed was staged on a narrow downtown London street. The action involved a wide range of props and players: no less than 30 small British automobiles in a typical traffic jam, 14 London bobbies, and the usual assortment of pedestrians. Here, with the aid of two inspectors from Scotland Yard to keep interested bystanders in check, we filmed comedy action of Danny Kaye (actually his double, Jon Pertwee) dodging bobbies in and out of traffic in a typical "chase" scene.

Elsewhere, when filming on London streets, where the public might ordinarily interfere with our operations, we adopted a sort of shelter which we used as a "blind" to conceal the camera. This was a framework, about six feet in height, having a rounded top and completely covered with dark brown canvas, except for one side. London utility workers use these to cover man-hole openings when working on underground power and telephone lines. Thus, whenever we used one to conceal the camera, most passersby rarely gave it a second look, so accustomed are they to seeing the shelters on London's

streets. Few really knew that a motion picture camera crew was busy inside shooting movies. The shelters proved ideal also whenever we had to shoot in the rain.

An interesting sidelight is the fact many of our exterior shots were planned to include some famous London landmark, thus injecting authenticity of locale into the story. For example, in one shot the camera pans to follow a car coming out of an alley and turning down one of the principal streets. We continued to pan and closed the shot with St. Paul's Cathedral looming in the background. Similar treatment followed to include such well-known landmarks as London Bridge, the Parliament buildings, etc. These shots are more convincing than any replicas that might be filmed on a studio backlot.

Except for myself, our camera crew consisted entirely of British technicians. First cameraman was Hal Young, assisted by operator Arthur Grahame. Hugh Salisbury was Technicolor technician. Others were Bert Lott, grip; Archie Dansie and G. Smith, electricians; Jack Bark, props; Albert Cowland, grip; and George Hendry, W. Waldron, H. Turner, and William Epps.

This same crew went along to aid us in shooting the additional scenes we

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made in Zurich. We arrived in the Swiss city at two in the afternoon, and went right to work setting up for a series of night shots at the airport. Because of the very long twilight that prevails in this northern latitude, we were able to work well into late evening. For our daytime filming, we encountered almost the same kind of light we had found in London—extreme haze. Although we were in Zurich only a day and a half, we did about three days' work in this time. You see, we had to keep to our schedule in order to get the technicolor camera back to London by the 26th of May.

All told, we shot about 40,000 feet of Technicolor 3-strip. We were overseas almost a month—from May 1st to May 30th to be exact—my first visit to Europe, incidentally, since World War I, when I was a combat cameraman.

Working with the friendly crew of British technicians was a happy experience. When we boarded our plane for home, the entire crew came to the airport to see us off. Whereas most of these men are eager to work with Hollywood cameramen with the expectation perhaps of learning new tricks about making movies, I think we both benefited—each learning from the other. Perhaps we left a usable idea or two with them. For one thing, shooting exteriors under the conditions we did, proved interesting to them. It is the general practice for London producers, whenever the script calls for a great number of exterior shots, to build a replica set on the sound stage and shoot with the benefit of constant artificial light. On our assignment, which consisted almost entirely of exteriors, we shot on the actual exterior locales without benefit of booster lighting.

The only lighting equipment we had to augment daylight were two sunlight reflectors and the two photoflood units previously mentioned, which I managed to pick up in London. In most instances we simply plugged these into a convenient streetlamp power line. These two lamps proved especially valuable later when we made day-for-night shots one evening at dusk, with the photofloods providing fill light.

In addition to the continuity scenes outlined in the script, we also shot a number of background plates to be integrated by Farciot Edouart, ASC, and his process department with the footage that was being shot by the first-unit working at the studio in Hollywood. In this operation, we had the script to guide us. We made it a point always to shoot extra footage and "protection" shots, because returning for retakes later was out of the question.

The result of this assignment may be seen a few months hence when Paramount is scheduled to release "Knock On Wood," which is being produced and directed by Norman Panama and Melvin Frank. Alvin Ganzer, incidentally, assisted Frank as associate director on the second unit filming.

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Florman & Babb, New York, N.Y., have been appointed official distributors by Bausch & Lomb Optical Company of the line of Baltar lenses.

The Baltar series, used throughout the world, is standard equipment on Mitchell 35mm and 16mm cameras. The lenses are available in both 16mm and 35mm. They will be mounted for any camera by Florman & Babb.

THE FUNCTION OF SPECIAL EFFECTS

(Continued from Page 380)

buck up interest in a story, to create laughs occasionally. Indeed, the range of special effects is almost limitless. By this technique it is possible to create parts of a scene which cannot be built on the stage; to use photo cutouts to enlarge the pictorial scope of a set. The services of the Mercer organization include projection shots, animated cartoons, underwater shots, montage shots, machine-made fades, integration of stock shots, lap-dissolves, miniatures, wipe-offs, trailers, and inserts.

Two kinds of special effects are offered; mechanical and optical. Mechanical effects are created by use of miniatures and miniature sets; with background projection; with aid of mechanical devices on title board; and by special maneuvers with the camera. Optical effects are executed on the unique Mercer fade machine.

The Ray Mercer company has been servicing Hollywood motion picture producers, both independent and major, for 25 years. Previously Mercer, a member of the ASC, had been a special effects cameraman for the major studios. When he established his own business in 1928, he had just completed the Mercer fade

machine, the only one of its kind. Although modified somewhat, it is still in use today. Four years later Mercer added an optical effects machine to his equipment; this enabled him to produce, in addition to fades and dissolves, many trick effects including a wide range of "wipes," which at the time were in high favor. Today, certain "wipes" are widely used in making TV spot announcements. Further expansion of the Mercer organization occurred some years later when a complete art department was added. This was the beginning of Mercer's well-known title and insert service, which forms a large volume of his business today. Titles for many of the leading TV film programs are executed in the Mercer studio.

In addition to main and credit titles for TV films, feature films, short subjects, etc., the Mercer title department also makes the continuous title or "foreword" used in some pictures, and subtitles. Superimposing lettering over TV commercial live action is an important function.

According to Ray Mercer, producers of television films have found that special effects are the answer to getting

high-budget results from low-budget productions. Many leading TV shows such as "Fireside Theatre," "Wild Bill Hickok," and "Boston Blackie" employ special effects made by the Mercer organization. Among the major studios which use its services are Columbia and Monogram.

Nor is Mercer's special effects and title service confined to local production. TV and industrial film producers the nation over send to the Mercer company for their special effects requirements. Some, furnishing only a brief outline of their needs, leave the planning and execution entirely to Ray Mercer.

To assist clients in planning special effects for their productions, Mercer has prepared a chart which shows graphically 91 different styles of special effects which his studio can produce on either 16mm or 35mm film. These range from the lap-dissolve to highly complicated multiple wipe-off effects and montages.

It is in television where Mercer's varied services have been especially helpful. Here fades, dissolves, wipes and other trick effects are employed to set the tempo of a commercial—to enable it to get the most in a message across to the viewer in the shortest time. The procedure is something like this: the film is shot, scene by scene. The producer edits the film and decides what effects he wants and where. Sometimes its simply



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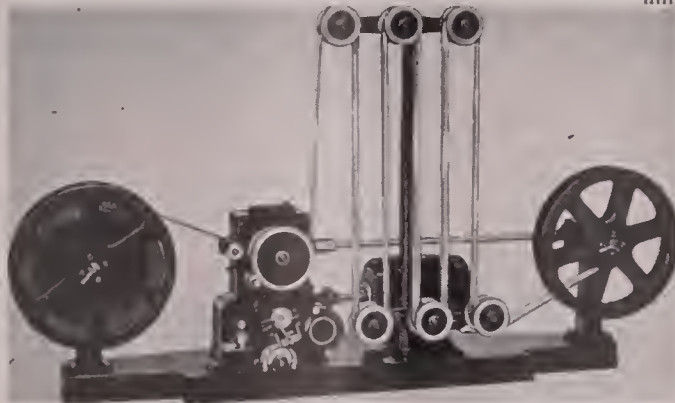
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text lettered over the live action. Using a "count sheet" he makes notes indicating exactly where the effects or lettering are to be made, and sends film and "count sheet" to Mercer. Here artists and optical engineers go to work and execute the effects necessary to produce a smooth professional-like TV commercial.

More recently, the advent of wide-screen movies has created additional work for the company—that of making main titles in the new wide-screen format for old films that are to be released for screening in the new format, as well as for newer productions shot especially for wide-screen showing.

"There's always something new coming up," says Ray Mercer. "and we try to be ready for it." Even the recent trend for underwater pictures found him ready to supply special underwater effects. There's a large "tank" on his back lot, where this work is done. And whenever there is a particularly vexing photographic problem to be solved, there is always veteran Ray Mercer on hand to work it out.

ELGEET STEREO

(Continued from Page 384)

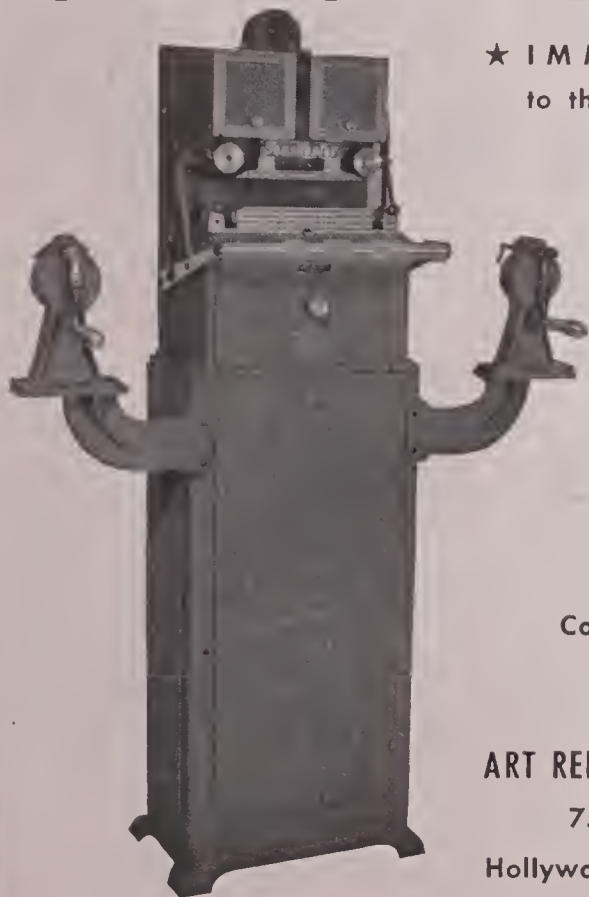
on the film corresponding to that seen by right and left eyes. By using a single lens system and prism it is impossible for one image to go out of focus in relation to the other. And the lens system has a long back focus so that it can be used with any camera. This design was selected by Elgeet after several years of research, development and testing as the one offering the maximum adaptability and capable of producing images of the highest possible quality, depth and definition.

The optical system of the taking lens is fully color corrected and all lens surfaces are hard-coated with Elgeet's "Elcote." Click-stops on the diaphragm facilitate setting at any of the openings between $f/2.8$ and $f/22$. The diaphragm openings are adjusted to compensate for any light loss due to beam splitting so that settings will be equivalent to normal lens settings. The lens is of the universal focus type with a range of focus from 5 feet to infinity. A close-up attachment will be available shortly. The lens is currently available in models to fit all C-mount cameras.

The projection lens in the Elgeet Cine-Stereo System consists of a twin $f/1.6$ lens with polaroid segments built in. All lens surfaces are hard-coated. A focusing arrangement of the unit permits precise focusing of the screen image. Adapters are available to fit this lens to all standard 16mm projectors.

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jection lenses, the manufacturer supplies with each system a 26" x 36" metalized screen, a necessary item since ordinary projection screens tend to depolarize the light and reduce the three-dimensional effect. The system also includes a viewfinder that adapts the owner's camera to stereo filming, and eight pairs of polaroid glasses, two of which are laminated glass viewers with plastic frames. Price of the complete system

is \$249.50 (\$259.50 for Bolex and Bell & Howell 70 Series cameras).

Use of the Elgeet Cine-Stereo System requires no special techniques other than selecting compositions that produce the best three-dimensional effects. Since the lens is fixed-focus, it is only necessary to keep subjects beyond five feet. The diaphragm is set in the same manner as a normal lens and at equivalent stops.

COVERING SPOT NEWS FOR TELEVISION

(Continued from Page 379)

casts each week. A policeman uses the accident film in pointing out ways to avoid similar wrecks. This cooperative arrangement on the safety program also works to the news department's advantage in covering all types of stories.

A third party is involved in the production of the safety shows and that also works to the station's advantage. The cars used by WTVJ's cameramen are supplied to the station without cost by a Miami automotive dealer. In return, the dealer gets valuable advertising in the form of a courtesy "slug" on the cars and receives mention on each traffic safety program.

Besides working with the police and fire departments, the entire news staff constantly strives to build up news sources and contacts. Tips may be supplied by funeral homes, airlines, military bases, governmental agencies and the thousand and one "little guys" in an area who stumble across a news-making story.

These tips are funnelled to members of the news staff. The following staff positions comprise the WTVJ staff: News director, news writer, 3 cameramen, film editor, librarian-secretary, 3 newscasters and a laboratory man to process film. Directors for all programs, supplied by the station production department, supervise the handling of all commercials and integrate them into the programs along with material prepared by the studio newscaster, and any film, slides and stills.

Besides these fulltime personnel, the University of Miami Radio-TV and Journalism departments place several students in the WTVJ newsroom each semester for internship training.

The WTVJ news staff produces 29 news, sports and safety programs each week. Most of the effort goes toward producing a daily and Sunday 15-minute local and state news program.

Filling an entire 15-minute period each day in and day out with timely locally-filmed news is a difficult task. There is no syndicated national and international film used. Thus from eight to ten news stories each day must be shot

by local staff members.

Usually, at least one story per day is shot sound-on-film. An Auricon "Pro" 1200 supplies the sound footage. All other news film is taken with 2 Bell & Howell 70-DL's, a B & H 70-H, and a Keystone. The Bell & Howell 16mm cameras are turret-equipped and fitted with wide-angle, one-inch and two-inch lenses. A four-inch and ten-inch lens are used for special assignments along with two 400-ft. motor-driven magazines. For portable light, 3 Frezzo-lite battery packs are utilized.


The news department uses two Bridgematic processing machines. One develops negative film and the other processes positive prints made on a Bell & Howell model "J" printer.

For basic shooting purposes, Eastman 7230 and 7232 motion picture film is used. However, for SOF shooting, Dupont 930-A stock is used. The film is processed to a negative, with reverse polarity giving a positive image when aired on TV.

The normal deadline for getting film back to the laboratory in time to be processed for the 6:45 p.m. news show—the local and state roundup—is 5:00 o'clock. However, stories are covered right up until air time. Film in the Bridgematic at 6:15 gets on the 6:45 program. If the story breaks just before air time the cameraman shoots stills with a Polaroid-Land camera along with film. The stills are then televised at 6:45. The film is aired on a later news show.

Advance planning usually helps in getting many filmed stories aired while they are timely. An example of this was WTVJ's coverage of the Tallahassee, Florida inauguration of Governor Dan McCarthy last January 6th. The swearing-in ceremony was at high noon in the capitol city, 500 miles from Miami. A cameraman with sound gear was sent via commercial airline to Tallahassee a day before the inauguration, in order that a strategic shooting location could be lined up in advance and necessary contacts made.

The morning of the ceremony, the



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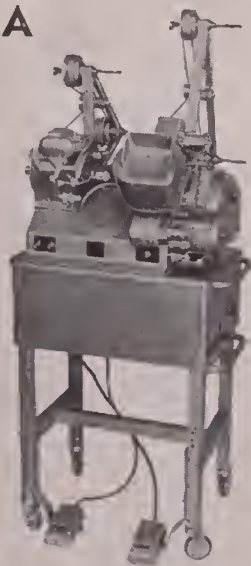
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news director flew to the capitol with a National Guard band unit aboard an Air Force transport. Films were taken of the impressive ceremony at high noon, but their shipment back to Miami was delayed until 3:00 o'clock—the National Guardsmen had to march in the Inauguration parade. The plane finally landed at Miami International Airport, ten miles from downtown Miami, at 5:30. A motorcycle was parked on the runway. As the plane taxied to a stop the film was tossed to the driver. He hopped aboard the cycle and rushed it to the station downtown. The footage was edited and scripted in time for airing at 6:45. It was a clean beat over other news media despite the fact the film was shot the same day 500 miles from Miami.

In reporting the 1953 session of the Florida legislature at Tallahassee, advance planning enabled a WTVJ news camera crew to film the highlights of the session during the first week. Interviews were filmed with leading legislators touching on major issues that were bound to come up during the 60-day session. Stock footage of the House and

Senate in action along with pictures of leading state officials provided more usable film.

Thus, timely sound and silent motion pictures were aired on WTVJ news programs during the two-month legislative meeting. The camera crew shot 9,000 feet of film the first week of the session. Advance planning provided usable footage throughout the 60-day period at a tremendous saving to the station.

The WTVJ news staff gets full support from station management without interference in editorial policy. The Miami news operation is not geared essentially to making a dollar but rather to the production of high-standard programs that make a TV station an integral part of community life.

A television station can't hope to integrate itself into a town or city merely by picking up network produced programs—news or any other type. A station has got to lean heavily upon the problems and happenings of the hometown.

WTVJ has a hometown TV news operation that is paying dividends in community service and goodwill.

FILMING TV WESTERNS

(Continued from Page 377)

local technicians. Handling the sound is Roy Meadows of Hollywood, and Ebid Mitterling, a local technician.

Sam White of Hollywood, well-known for his work with Paramount and Columbia studios, is in the director's chair—which incidentally moves pretty fast and far to keep in line with the low-budget allowance of \$15,000 to \$18,000 per picture.

When a production-schedule starting date is set up, Fred Jackman and Sam White come to Tucson several days in advance and go over proposed location sites, and select tentative camera setups. Object of this pre-planning is to enable crew to move quickly and operate efficiently, once the camera starts to roll.

When production begins, camera, sound equipment, reflectors, etc., are carried to location in a specially-equipped station wagon. Whenever action takes us into rugged terrain, we employ a jeep for the camera and crew.

One big advantage we find in shooting in the open country close to Tucson, is the fact we can invariably shoot in every direction without picking up any signs of civilization, such as telegraph poles, automobiles, etc. In many instances we merely swing the camera around 180 degrees to change from a saguaro-studded landscape to a rocky cliff; or by moving a mere hundred feet, change from a rich pasture to a dry wash. The economy effected in such

operation is ideally suited to TV film production. Indeed, our crew is constantly solving problems which keep production costs to a minimum.

By careful planning we are able to have one scene made ready for shooting while filming another; the camera is merely moved to the next set-up and started as soon as rehearsals are completed.

In a typical economy operation, we filmed two scenes in one location—each set at different periods in the story, within 15 minutes of each other with practically no change in camera position.

To film a dam scene in our last production, an existing lake in the Sabino Canyon area was used through permission of the government. All picnickers were excluded during the period of shooting. While the existing dam in the Canyon is of masonry construction and too large to double for the dam we required, we moved to the upper end and constructed a small log dam, which research told us was more in keeping with the times. The logs we used were borrowed from a neighboring ranch, and returned intact after shooting.

The shooting on "King of Tucson," our pilot film, started at noon on a Monday, where we filmed the opening scenes in the barbership at Benson. The following day, all hands were transported to Old Tucson, 15 miles west

of Tucson proper, for a full day's shooting of exteriors. Our schedule was carefully worked out in order to take advantage of the best light for each set-up. We had the last scene "in the bag" just as the sun went down. The next two days were consumed in filming sequences at a hideout in mountains near Old Tucson. An early start Friday morning put crew and cast on location at the X-9 Ranch of Gordon Packard, about 35 miles east of Tucson—at the base of the Rincon Mountains. Here ranch scenes and chase shots were filmed alongside a dry stream bed having huge cottonwood trees in the background to add a pictorial note. Saturday's shooting schedule took us into Sabino Canyon, where the action at the dam, mentioned above, was filmed. Thus, we wound up the shooting of the initial film in our series in just six days.

One of our biggest assets perhaps is the availability of the Old Tucson movie set nearby, which was constructed some time ago by Columbia Pictures for their production, "Arizona." The set was left intact and subsequently turned over to the city of Tucson as a gift.

The Tucson Junior Chamber of Commerce aided by its Vigilantes maintains the set as a tourist attraction, and also allows it to be used by film producers for a small fee which goes into the maintenance fund.

Still another advantage is a large collection of old-time wheeled vehicles, from buckboards to stage coaches and covered wagons, which is maintained by the Fiesta de los Vaqueros committee of the Tucson Chamber of Commerce, and which are rented to motion picture companies at low price. Live stock and riders are also in abundance—a part of the country itself.

With all these wonderful advantages, shooting TV film productions becomes a pleasurable and inspiring experience. Now that our most recent film is in the final editing stages, we are preparing to shoot the next in the series. Titles of the first six pictures in the "Rawhide Riley" series are as follows: "Teacher's Bell," "Backward Horseshoe," "Trail of Terror," "Sheriff's Badge," "Broken Lance," and "Magic Legamocs." For these episodes the pattern of introduction and the lead to the following week's episode will vary; but basically they will be the same as in the initial story: the relic in the barbership museum which serves as the subject of the barber's narrative, and his invitation to return "next week" for another story.



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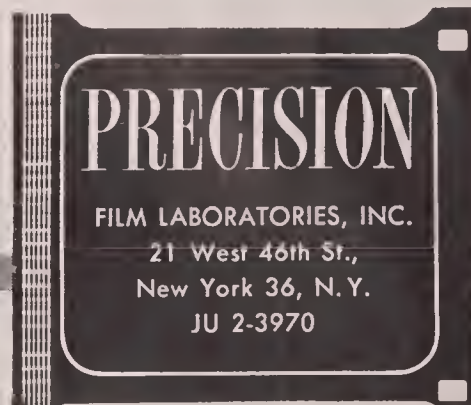
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(Continued from Page 373)



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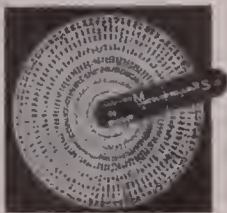
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the pictures easier to look at, though of course they lose some of their "depth." Often they tend to look "giantized," and in extreme cases a distortion known as "cardboarding" takes place. This term is almost self-explanatory for the pictures lose their detailed plasticity and objects appear to be flattened into distinct planes which look like cardboard cut-outs at varying distances from the camera.

The proper interaxial spacing for "normal" photography has been the subject of a great deal of controversy. One line of thought has been to keep the geometric proportions in the projected picture the same as those in the scene in front of the camera. This requires that the interaxial spacing be proportional to the distance from camera to object (or to plane of convergence). In order to photograph pictures for projection on full-sized theater screens with this method, however, requires such narrow interaxial spacings that only those cameras using beam splitting mirrors or prisms can take the pictures. Moreover, the resulting pictures show a definite loss of depth and have serious "cardboarding," showing unmistakably that the geometric approach is not a correct one for motion picture photography.

Another method has been to assume that since the eyes have a fixed interaxial spacing, the camera lenses should likewise be at a fixed distance apart. This fails to take into account the obvious fact that with different focal lengths of lenses, the apparent position of the observer does not always coincide with the actual camera position. Therefore, except for a single lens focal length, the perspective in such pictures will not balance the stereoscopic depth effects, and distortions are sure to result. Furthermore, close-up photography demands the reduction of interaxial spacing to give proportions which appear natural in the "giantized" close-up representations.

The Motion Picture Research Council has found a method of calculating the apparent dimensions as they actually will appear to the observer in the theater. These will usually not be the same as the geometric dimensions of the projected images, but then the twelve foot high images of people we now see in projected "flat" pictures do not actually appear that tall. The result is that it is now possible to obtain pictures which appear to have natural proportions, and to do this consistently without compromising with the calculations, without guesswork, or without

making extensive preliminary tests.

Fortunately the interaxial and convergence settings required to give these results are for the most part well within the range of the better camera equipment now available. Even more important, it is possible to continue to use most of the camera technique which has already been developed for "flat" photography. If the equipment is flexible enough there will be but very few limitations on the kinds of shots which can be made. The cameraman can therefore use all of the skill he has developed in "flat" photography and will find that he can quite easily obtain exactly the effects he wants in this new medium.

In making this development, it was considered essential to keep the control of the camera in the hands of the cameraman. Therefore a computer or calculator has been prepared with which the cameraman or his assistant can make the few calculations required to obtain the best settings for any given shot. This calculator is in the form of a circular "slide-rule," about 4" in diameter, as shown in the accompanying figure. A special leather case with tab for hanging it on the camera is included as are a set of directions neatly printed on a vinylite card.

This calculator gives:

- (a) the relationship between lens focal length, distance to plane of convergence and interaxial spacing.
- (b) maximum distance which can be included in a shot without having background points diverge too widely.
- (c) safe distances which action can come toward camera from plane of convergence without undesirable distortion or "pull" on the eyes.
- (d) recommended interaxial settings for medium shots and close-ups for different focal lengths of lenses.
- (e) relationships between all these values so that the "best" settings for any required situation can be obtained.

In addition, a full set of directions in which several typical examples are worked out is included, and the Council furnishes with each calculator a copy of a special bulletin it has prepared on three-dimensional photography.

The 3-D calculator described above is available directly from the Motion Picture Research Council, 1421 North Western Ave., Hollywood, Calif.—Ed.

BOOKLETS BULLETINS CATALOGS

Background Mood Music—A number of catalogs listing mood music selections for use by producers of commercial, industrial and TV films are available from Thomas J. Valentino, Inc., 150 West 46th Street, New York 36, N. Y. Music is also ideal for use by amateurs when recording magnetic sound on their 16mm films. Catalogs list the selections of Brull Music, Paxton, Francis Day & Hunter, and Odeon. A sound effects recording catalog is also available.

For Movie Amateurs—“Tips On Making Home Movies” is title of the latest in the series of “Tips” booklets published by Bell & Howell Company, 7100 McCormick Road, Chicago 45, Ill. Easy to look at and fun to read, the pocket-sized booklet fits into your camera case. Learning to “see” the light, how to shoot moving targets, the right scene length, and the question of “panning” are explained in simple, non-technical language. Booklet is available from and Bell & Howell dealer, or direct from the company.

Sound-on-film Equipment—A new Auricon catalog is now available from Berndt-Bach, Inc., 7381 Beverly Blvd., Los Angeles, which illustrates and describes company's entire line of single- and double-system sound cameras. Complete details are given on the Cine Voice, the Auricon-Pro and the Super-1200 16mm cameras, in addition to the Auricon sound recorder, portable power supply unit, dual phono-turntable and camera tripods.

Animation Equipment—Descriptive literature is available from J. G. Saltzman, Inc., 480 Lexington Ave., New York 17, N. Y., on the company's line of animation and special effects camera stand and optical printer for special effects work—equipment which is applicable to the production of animated titles, cartoons and trick photography.

Movie Makers' Magazine—Regular free mailings of the *Bolex Reporter* are available to Bolex camera owners by registering the serial numbers of their cameras with Paillard Products, Inc., 100 Sixth Ave., New York 13, N. Y. Offer applies to residents of U. S. A. only. Publication is issued quarterly.

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In Classified Ads this month—Pg. 405

3-D IN INDUSTRIAL FILM PRODUCTION

(Continued from Page 375)

the title roll clasped in the crane vise, turn, and drop the roll right into the camera—and, thanks to 3-D, right into the laps of the audience!

But how to light a room of that magnitude for 3-D and color? The main source of light was daylight filtering through windows on either side, near the ceiling. While this light was adequate for illuminating part of the upper rolls of paper, it was hardly enough to properly light the roll with the title when in front of the camera. In short, there wasn't enough daylight and we couldn't possible use enough incandescent lights.

Again we were forced into a compromise; the only solution to the problem was to mix tungsten light with daylight. We therefore decided to use two 10-KW lamps to follow the roll of paper in its course.

Our next problem was to insure a satisfactory take with the roll of paper dropping toward the camera precisely for the 3-D effect we wanted. While the crane operator could pinpoint his maneuvering so that he could almost stop on a dime, each scene was costing us thousands of dimes. We couldn't take take any chances. If he didn't bring the roll straight down towards the camera after the turn, the shot would be ruined. We decided to take no chances. Instead, we would shoot the scene in reverse, and then turn the film end for end. For this, our director of photography Stan Vrba made a u-shaped camera bracket, which enabled him to mount the Bolex camera upside down on the tripod. Thus, instead of having the crane operator lower the roll of paper toward the camera, we started shooting with the roll in its final position, properly framed. On cue, it was whisked up, turned, and moved away. It became the thrilling, dramatic shot we had all hoped for.

Wherever we could, we used the client's equipment, like the overhead crane, to obtain the most dramatic shots. For instance, to photograph a scene of the aniline printing press, we commandeered a fork-lift truck, and used it as a camera crane. Starting the shot with camera focused on a revolving roll of paper, we then moved up and over into the printer as the normal tan color of the paper turned to a beautiful green as it was inked by the press.

Dramatic camera action was added to still another shot in a similar way. The script called for picturing the corrugated containers spewing out of a printer-slotter machine. We decided to

use the machine's conveyor belt for a dolly. A large sheet of corrugated was laid across the conveyor and the camera set up on it, focused on the point where the containers emerged from the machines onto the belt. Cameraman Verba knelt beside the camera and focused on the boxes as they came out of the machine. Both camera and boxes (and the cameraman, of course!) moved back at matched speeds in a smooth dolly shot that is very effective on the screen. Starting as a closeup, the shot widened out to include the entire face of the printer machine.

There were many cases where we found it advantageous to cut down on the depth of a room. The wild walls necessary for this were right at hand, for we were working in a factory that turned out 20 carloads of corrugated cardboard a day—all heights and widths. We simply selected the panels we wanted and mounted them in place.

In these early days of 3-D movies, there is a fascination in seeing objects project from the screen, and judicious use of this effect can help to emphasize a point, especially in an industrial or sales film. We have employed the 3-D "gimmick" in this production to point up certain facts.

In one instance, we emphasized the importance of good printing in container design with detailed shots of a printer applying text and design in green ink to the containers. To impress the viewer at this point, we introduced the 3-D gimmick of projecting action beyond the stereo frame. We pictured a chemist filling his test tube with green ink from the ink fountain of the press, then walk toward the camera, holding the test tube at arm's length to examine it. Viewers are forced to examine it with him, because it's coming right out of the screen and seems almost to be touching them.

In still another shot, a girl in the company chemistry laboratory pours a beaker of colored ink into a sink. In a reverse shot, the audience becomes the sink and the girl, by extending the beaker in her hand beyond the stereo window, seems to be pouring the ink right into the laps of the audience. Other shots of this type include a workman who hands a panel of colored cardboard out to the audience, and in the closing shot of the film, a shapely model projects a box bearing the words, "The Third Dimension."

This ten-minute film in color, sound and 3-D was produced in just two-and-a-half weeks. At the Packaging Exposition, some 15,000 people visited Stone

Container Corporation's booth and donned Polaroid viewers to watch the film unfold on the screen.

Since completing the Stone Container film, we have made 3-D films for Sears, Roebuck & Co., Holsum Bread and others. Some clients have asked me: "Don't you think that 3-D is just a fad? That it will quickly lose its novelty? To all such questions I have but one answer: I think that 3-D films will revolutionize sales training, sales promotion, indeed the entire field of business films, and most certainly educational films. The realism and the lasting impression that is created by this realism is something that won't soon be abandoned.

BULLETIN BOARD

(Continued from Page 362)

attack at his home in Hollywood on July 26th. DeVinna, who was about 60, won an Academy Award in 1929 for the photography of "White Shadows of the South Seas." He started in show business in 1915, becoming a cameraman later that year.

Harry Jackson, 57, died August 3rd at the Hollywood Hospital following a five-week illness which forced him to retire from photographing a production at MGM. For several years Jackson had been one of 20th Century-Fox's most active directors of photography. Last year, he did two pictures for MGM and had only recently been called for a third.

Milton Krasner, ASC, is in Rome, Italy, preparing to direct the photography of 20th Century-Fox's "Three Coins In The Fountain" in CinemaScope. Krasner finished shooting Fox's "Demetrius" early last month.

The election of Arthur Edeson last month as president of the ASC, also produced a reshuffle of offices on the Society's board of directors. As a result, Milton Krasner is now 1st vice-president; Arthur Miller, 2nd vice-president; and Hal Mohr, 3rd vice-president.

Karl Struss, ASC, extending his stay in Italy, is currently directing the photography of "Cavaliere Rusticana" in color and 3-D. Struss reports he will probably remain in Italy until December.

Freddie Young, ASC, is shooting MGM's "Knights of the Round Table" in London. Picture is first Cinema-Scope production to be filmed in England.



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Current Assignments of A.S.C. Members

Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

★★★★★★★★★★

★★★★★★★★★★

Allied Artists

- WILLIAM SICKNER, "Slade," (Lindsley Parsons Prod.) with Mark Stevens and Dorothy Malone. Harold Schuster, director.
- CARL GUTHRIE, "Tabloid," with Stanley Clements and Gloria Henry. Edward Bernds, director.
- HARRY NEUMANN, "Pride of the Blue Grass," (Color, Widescreen) with Lloyd Bridges and Vera Miles. William Beaudine, director.

Columbia

- CHARLES LANG, "A Name For Herself," with Judy Holiday and Peter Lawford. George Cukor, director.
- FRANK PLANER, "The Caine Mutiny," (Kramer Co., Technicolor) with Humphrey Bogart, Jose Ferrer and Van Johnson. Edward Dmytryk, director.
- LESTER WHITE, "Jesse James Vs. The Daltons," (Esskay Pictures; 3-D, Technicolor) with Bret King and Barbara Lawrence. William Castle, director.

Metro-Goldwyn-Mayer

- ROBERT SURTEES, "The Long, Long Trail," with Lucille Ball, Desi Arnaz, and Marjorie Main. Vincent Minnelli, director.
- HARRY JACKSON, "Rhapsody," (Technicolor) with Elizabeth Taylor, Vittorio Gassman. Charles Vidor, director.
- FREDDIE YOUNG, "Knights of the Round Table," (CinemaScope-Technicolor) with Robert Taylor, Ava Gardner and Mel Ferrer. Richard Thorpe, director.
- HAROLD LIPSTEIN, "Gypsy Colt," (Ansco-Color-Widescreen) with Donna Corcoran, Ward Bond and Frances Dee. Andrew Marton, director.
- GEORGE FOLSEY, "Tennessee Champ," (Technicolor-Widescreen) with Shelly Winters, Dewey Martin and Keenan Wynn. Fred M. Willcox, director.

Paramount

- DANIEL FAPP, "Knock On Wood," (Widescreen, Technicolor) with Danny Kaye, Mai Zetterling. Producer-directors, Norman Panama and Melvin Frank.
- WILLIAM MELLOR, "Alaska Seas," (Widescreen) with Robert Ryan, Van Heflin. Jerry Hopper, director.
- ERNEST LASZLO, "The Naked Jungle," (Technicolor, Widescreen) with Charlton Heston, Eleanor Parker. Byron Haskin, director.
- LIONEL LINDON, "Casanova's Big Night," (Technicolor-Widescreen) with Bob Hope and Joan Fontaine. Norman Z. McLeod, director.
- LIONEL LINDON, "Lost Treasure Of The Amazon," (3-D, Widescreen, Technicolor), with Fernando Lamas, Rhonda Fleming, and Brian Keith. Edward Ludwig, director.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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 SOL POLITO
 JOHN SEITZ
 JAMES VAN TREES

Republic

- JACK RUSSELL, "Geraldine," with John Carroll and Mala Powers. R. G. Springsteen, director.

R.K.O.-Radio

- HARRY WILD, "The French Line," (Edmund Grainger Prod.; Technicolor) with Jane Russell and Gilbert Roland. Lloyd Bacon, director.
- WILLIAM SNYDER, "Rangers of the North," (3-D-Technicolor) with Victor Mature and Piper Laurie. Louis King, director.

20th Century-Fox

- MILTON KRASNER, "The Story of Demetrius," (CinemaScope, Technicolor) with Victor Mature, Susan Hayward. Delmar Daves, director.
- JOSEPH MACDONALD, "Hell and High Water," (Technicolor, CinemaScope) with Richard Widmark, Bella Darvi, and Victor Francen. Samuel Fuller, director.
- JOSEPH LA SHELLE, "River Of No Return," (Technicolor-CinemaScope) with Marilyn Monroe and Robert Mitchum. Otto Preminger, director.

- LEON SHAMROY, "King of the Khyber Rifles," (Technicolor-CinemaScope) with Tyrone Power and Terry Moore. Henry King, director.

Universal-International

- WILLIAM DANIELS, "The Glenn Miller Story," (Technicolor) with James Stewart, June Allyson. Anthony Mann, director.
- MAURY GERTSMAN, "The Glass Webb," with Edward G. Robinson. Jack Arnold, director.
- RUSSELL METTY, "Son Of Cochise," with Rock Hudson and Barbara Rush. Douglas Sirk, director.
- IRVING GLASSBERG, "Ride Clear of Diablo," (Technicolor) with Audie Murphy, Dan Duryea and Susan Cabot. Jess Hibbs, director.

Warner Bros.

- ARCHIE STOUT, "Hondo," (Wayne-Fellows Prod.; 3-D, WarnerColor) with John Wayne and Geraldine Page. John Farrow, director.
- EDWARD DUPAR, "The Bounty Hunter," (3-D, WarnerColor) with Randolph Scott and Dolores Dorn. Andre DeToth, director.
- ROBERT BURKS, "Dial M For Murder," (3-D, WarnerColor) with Ray Milland and Grace Kelly. Alfred Hitchcock, director.
- WILFRED CLINE, "Rear Guard," (3-D, WarnerColor) with Guy Madison and Joan Weldon. David Butler, director.

Independent

- ERNIE HALLER, "Carnival," (King Bros.; widescreen, color) with Anne Baxter and Steve Cochran. Kurt Neumann, director.
- VIRGIL MILLER, "Crazylegs, All-American," (Hall Bartlett Prod., widescreen) with Elroy Hirsch, Lloyd Nolan and Jane Vohs. Francis Lyon, director.
- WILLIAM BRADFORD, "Top Banana," with Phil Silvers and Rose Marie. Alfred E. Green, director.
- ELMER DYER, "Hollywood Stunt Man," (B.B.B. Ray Prod.) with Jimmy Gleason and Bill Henry. Bernard B. B. Ray, director.
- CLIFF STINE, "Americano," (Moulin Prods.; Eastman Color; widescreen) with Glenn Ford and Arthur Kennedy. Budd Boetticher, director.

TELEVISION

(The following directors of photography were active last month in photographing films for television, or were on contract to direct the photography of television films for the producers named.)

- NORBERT BRODINE, "Crown Theatre" series of 1/2-hr. drama telepix for Bing Crosby Enterprises at Hal Roach Studios; also "Letters To Loretta" series of 1/2-hr. drama telepix for Lewislur Enterprises, Inc., RKO-Pathe Studios.
- DAN CLARK, "Favorite Story" series of 1/2-hr. dramas for Ziv TV.

• EDWARD COLMAN, "Dragnet" series of half-hour mystery dramas for Mark VII, Ltd., at Walt Disney Studios.

• GEORGE DISKANT, series of half-hour dramatic shows featuring Chas. Boyer and Dick Powell for Four Star Productions at RKO-Pathe studio.

• HENRY FREULICH, "Tomorrow's Men" series of half-hour dramas for Screen Gems at Columbia Studios.

• KARL FREUND, Desilu Productions, Motion Picture Center.

• FRED GATELY, "Big Town" series of half-hour dramas for Gross-Krasne, Inc., at California Studios.

• JACK GREENHALGH, "This Is The Life" series of half-hour religious films for Family Films at KTTV Studios.

• BENJAMIN H. KLINE, "Fireside Theatre" series of half-hour TV dramas for Frank Wisbar at Eagle Lion Studios.

• ERNEST MILLER, "Hopalong Cassidy" series of half-hour westerns for William Boyd Productions, at Placeritas Ranch.

• KENNETH PEACH, "Cowboy G-Men" series of half-hour western telepix for Telemount-Mutual Productions; also "Mr. and Mrs. North" series of half-hour dramas for Federal Telefilm, Inc., at Samuel Goldwyn Studios; also "Ramar of the Jungle" series of half-hour adventure dramas for Arrow Productions at Eagle-Lion Studios.

• ROBERT PITACK, "Cavalcade of America" series of half-hour films for Jack Chertok Productions, General Service Studios.

• WALTER STRENCE, "My Little Margie" series of half-hour comedies for Roland Reed Productions, Hal Roach Studios.

• MACK STENGLER, "The Liberace Show" series of half-hour musical films for Snader Telescription Corp., at KLAC Music Hall Theatre.

• PHILLIP TANNURA, "The Burns and Allen Show" series of half-hour comedies for the McCadden Corporation, General Service Studios.

• STUART THOMPSON, "Your Jeweler's Showcase" series of half-hour telepix for Sovereign Productions, Eagle Lion Studios.

• JAMES VANTREES, "You Bet Your Life" (the Groucho Marx Show) series of half-hour audience-participation programs for Filmcraft Productions, at NBC Studios.

Color Films NG for TV

Color films that have been made for theatrical release and television films that have been photographed in color with an eye toward reissuing same when color TV makes its debut, will not be accepted for transmission on color TV.

Reason for this, explains Sylvester Weaver, administrator of NBC's color TV system, is because of a qualitative deficiency.

"There's an appreciable difference between pictures' artificial coloring and TV's electronic fidelity," said Weaver.

Meantime, RCA's engineers are working on some kind of compromise process that would make films shot in color more adaptable to color TV.

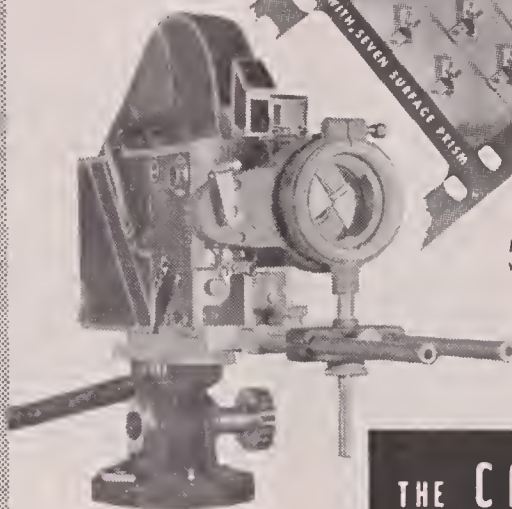
Outcome of RCA's experiments are certain to be watched with interest by major studios and TV film producers.

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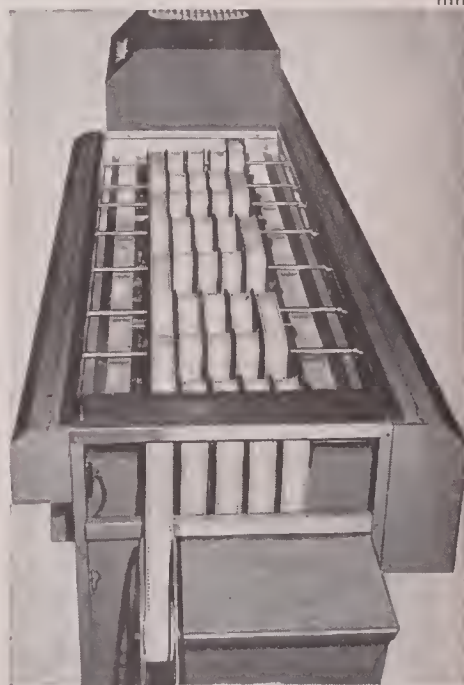
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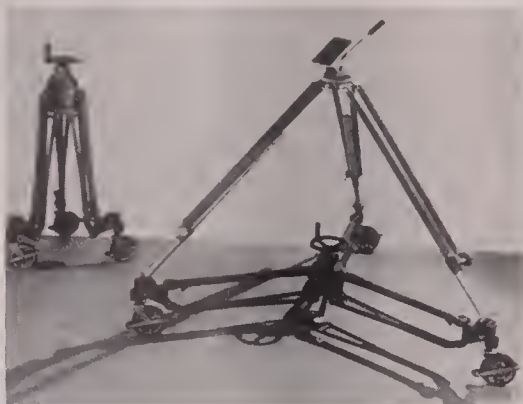


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Baltar Lens Distributors—Florman & Babb, 70 West 45th St., New York, N. Y., have been appointed official distributors of the Baltar line of Bausch & Lomb lenses. These lenses are standard equipment for Mitchell 35mm and 16mm cameras. They are also available for other 35mm and 16mm cameras, and will be mounted by the company.

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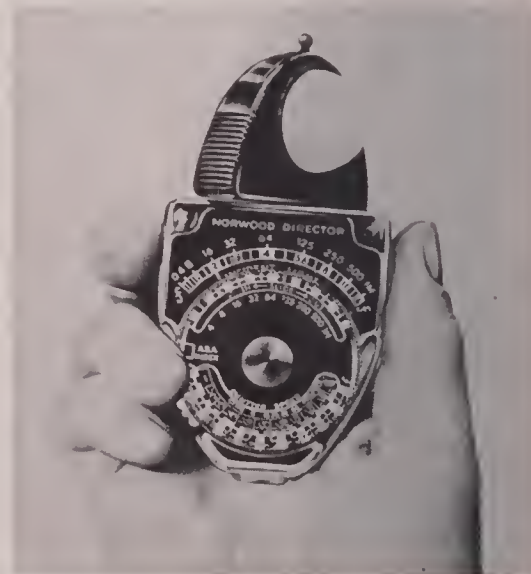
M. B. Paul Expanding Plant—M. B. Paul, maker of one-piece translucent background screens and BG projection screens, has begun construction on a new plant at 1347 West 1st Street, Los Angeles, which will provide double the operating space of present quarters. New plant will enable the Paul organization to turn out seamless one-piece screens up to 30 x 40 ft. in size.

New Film Splicer—Kalart Company, Inc., Plainville, Conn., are now marketing the new Craig Master Film Splicer, designed to splice all 8mm and 16mm sound or silent motion picture film, B&W or color.

Important innovation of new splicer is the floating action feather-touch scraper designed to remove emulsion quickly and efficiently. Scraper is recessed within splicer base, always ready for use. Re-

Norwood Meter For Color—Director Products Corp., 570 Fifth Ave., New York 36, N. Y., announces an improved model Norwood Director exposure meter featuring the "Color-Matic" control for simplified direct reading when calculating exposures for color photography.

The "Color-Matic" control is a perforated metal tab which is inserted into a slot in the meter. In use, the meter is

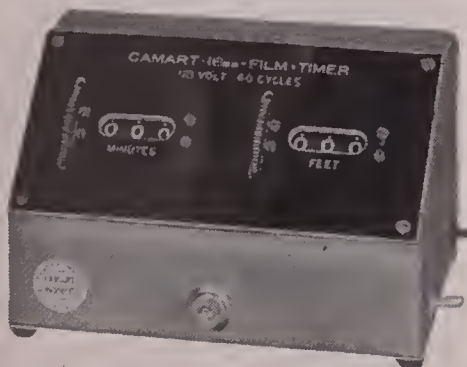


held with the photosphere pointing toward the camera. The needle on the meter's dial then indicates the proper f/stop for correct color picture exposure.

In addition to the "Color-Matic" control, the new model Norwood features a re-designed dial face having larger fig-

(Continued on Page 406)

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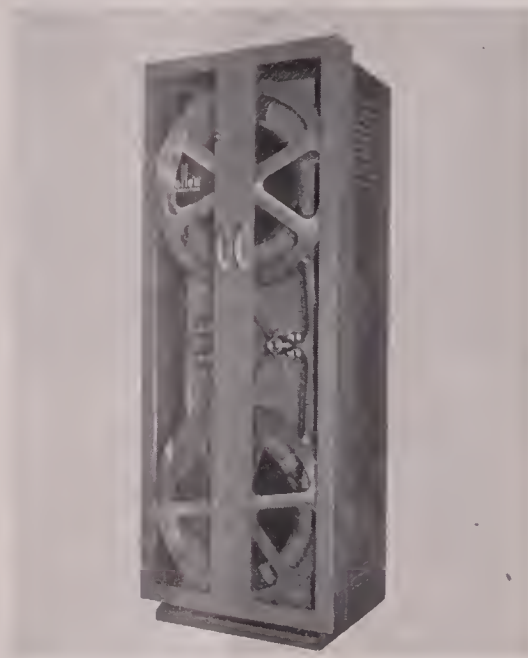
WHAT'S NEW

(Continued from Page 404)

ures that are more easily read than those on older models. Price of the Norwood Director complete with all attachments plus the "Color-Matic" control is \$32.95.

Stereophonic Reproducer—The Hallen Corporation, 3503 West Olive Ave., Burbank, Calif., announces its Model 3325TP stereophonic theater reproducer.

The complete system uses plug-in pre-amplifiers and power amplifiers easily adaptable to changes in the stereophonic



standard which may be adopted, thus reducing obsolescence to a minimum. The company offers systems for any size theatre. For information and prices, write the company, mentioning *American Cinematographer*.

Precision Lab Moves—Precision Laboratories, manufacturers of editing and laboratory equipment for the motion picture and television industry, has moved to new and larger quarters at 1139 Utica Ave., Brooklyn 3, New York. The company was formerly located at 244 West 6th St., New York City. It is not affiliated in any way with Precision Film Laboratories.

Slate and Clap-stick—National Cine Equipment, Inc., 209 West 48th St., New York, N. Y., is an important source for camera slates and clapsticks used in film production. This company's product is made of durable cast aluminum. It is a folding type having removable clapsticks. There is also a folding handle at rear of slate. The marking area has a

black matt surface for writing with chalk, and durable lettered text provides space for indicating the Prod. No., Date, Director, Cameraman, and data as to type of take. The take-indicating numerals are printed on black fibre composition and each are hinged to facilitate rapid change of order.

Size, less sticks, 10 $\frac{1}{4}$ " x 11 $\frac{1}{2}$ "; folded size, 5 $\frac{1}{8}$ " x 11 $\frac{1}{2}$ ". List price is \$40.00.

Sonotrack Coating for 'Dbl-Perf' 16mm—Eastman Kodak Company, Rochester 4, New York, announces that Kodak Sonotrack coating, the new magnetic sound-striping for motion picture films, is now available for double-perforated 16mm film.

Orders for this new service will be accepted by the company only through Kodak dealers. Dealers can order Sonotrack Coating when sending in customer's 16mm Cine-Kodak film for processing. It can also be applied to old films, already processed. However, work required to put repairable films in satisfactory condition for coating will be charged for on the basis of the time required.

The price of Sonotrack coating for either single—or double—perforated film is \$.025 per foot. Minimum order accepted is \$10.00.

Plastic Reel Containers—Eastman Kodak Company, Rochester, N. Y., now offers a 400-ft. 8mm transparent reel can designed to simplify film storage and identification. The container, including a 400-ft. 8mm plastic reel lists for \$1.60. Without the reel the price is 90c.

ARTHUR EDESON ELECTED A.S.C. PRESIDENT

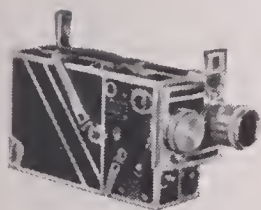
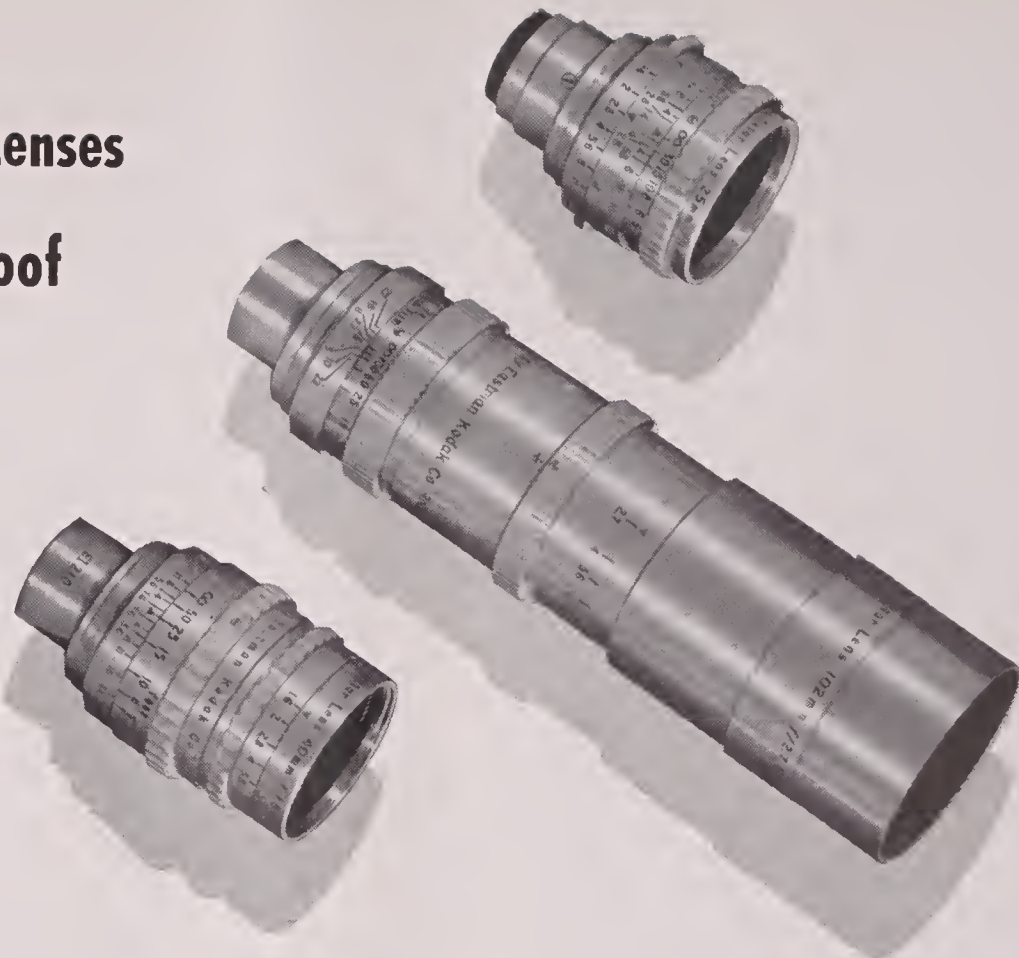
(Continued from Page 370)

Following his election as head of the ASC, Edeson immediately set in motion plans to extend the activities as well as facilities of the Society to its membership. The Society clubhouse in Hollywood, which is a recreational center to be enjoyed day or night by ASC members between photographic assignments, now has a nine-hole pitch-and-putt golf course added to its many recreational facilities. This has been laid out on the lawn fronting the clubhouse.

More recently, president Edeson and members of the ASC board of governors are busy with plans for the Society's big annual Ladies Night Dinner and Dance to be held at the ASC clubhouse in mid-September. This is an annual affair in which wives and lady guests join with ASC members in dining and dancing at what has become Hollywood's biggest annual garden party.

Kodak Cine Ektar Lenses

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YOUR Cine-Kodak Special II Camera, or almost any other 16mm. camera . . . or a personal 8mm. camera . . . acquires added versatility and a new personality when you equip it with Kodak Cine Ektar Lenses—standard equipment on many of the best professional cameras. The wide range of available focal lengths gives you maximum picture-taking range. And in all focal lengths, they give you the superior sharpness, brilliance, and color rendition that are the *screen proofs* of Ektar quality.

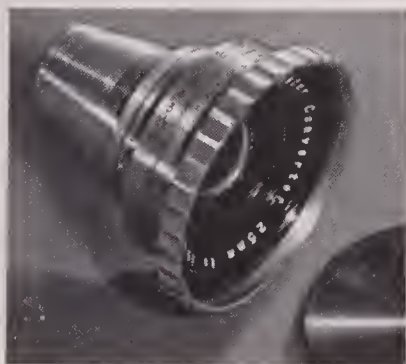
The finest lenses ever produced for 16mm. and 8mm. cameras are those which bear the name Ektar, Kodak's high-

est optical designation. For 16mm. cameras, there are seven Kodak Cine Ektar Lenses in comprehensively graduated focal lengths—a wide-angle, two super-fast lenses of standard focal length, and four telephotos ranging in relative magnification from 1½ to 6 times. Four of the lenses, as indicated below, can also be used as long-focus lenses with 8mm. cameras to produce magnifications from 2 to 5 times.

Kodak Cine Ektar Lenses provide unmatched flatness of field, crisp definition, and over-all sharpness. All are fully color-corrected . . . and color-matched . . . and all glass-air surfaces are Lumenized for maximum light transmission.

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15mm. f/2.5 wide angle for 16mm. cameras. . . \$ 78.25	40mm. f/1.6 for 16mm. and 8mm. cameras. . . \$114.40
25mm. f/1.9 for 16mm. and 8mm. cameras. . . 97.10	63mm. f/2.0 for 16mm. and 8mm. cameras. . . 115.40
25mm. f/1.4 for 16mm. and 8mm. cameras. . . 194.25	102mm. f/2.7 for 16mm. cameras. 124.30
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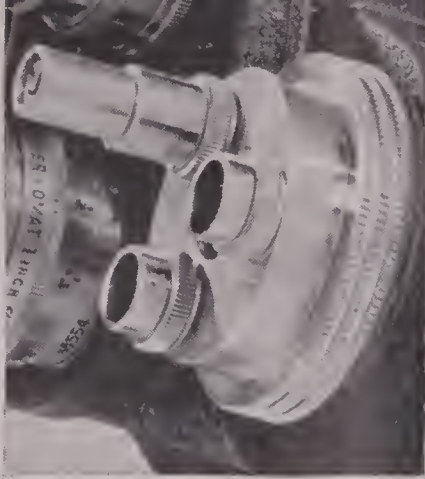
Ask your Kodak dealer to help you make a lens selection for your camera.

Prices include Federal Tax where applicable and are subject to change without notice.

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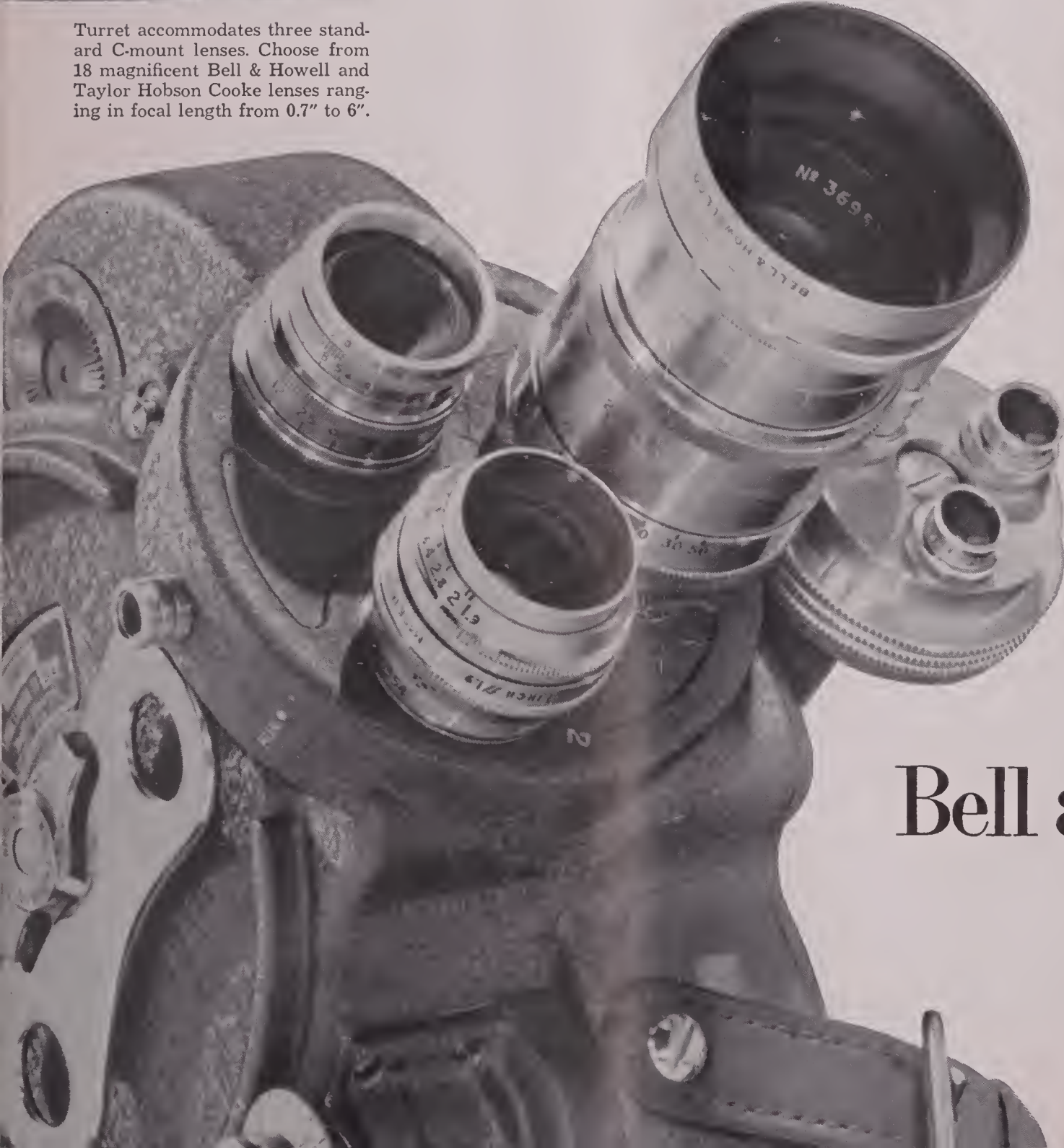
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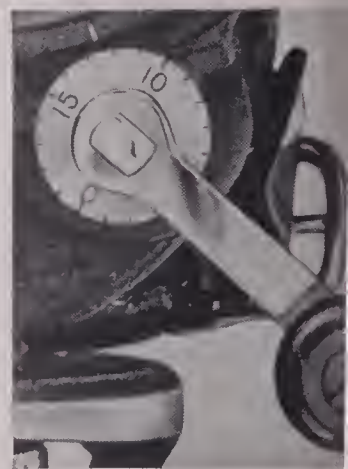


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In This Issue . . .

- WIDE-SCREEN FOR 16MM MOVIES
- SHOOTING A 16MM TRAVEL FILM IN 3-D
- CINEPANORAMIC—NEW FRENCH ANAMORPHIC LENS

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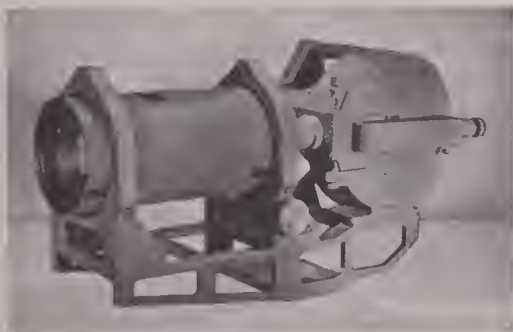
writes John H. Waddell, Fellow of the Royal Photographic Society and Society of Motion Picture and Television Engineers, Manager, Fastax Division, Wollensak Optical Company



Sequence of exploding firecracker taken at 8,000 FPS. in "Fastax" Camera.



Type 931 Film spotlights stocking "run." (Also exposed at 8,000 FPS.)



"Fastax" Camera, used in product or process motion analysis and other forms of high-speed photography, can record up to 16,000 frames per second. (Designed and manufactured by Wollensak Optical Company, Rochester, New York.)

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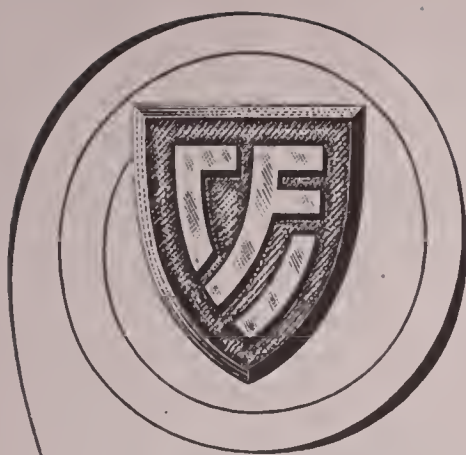
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PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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ON THE COVER

DIRECTOR of photography Ray Fernstrom, A.S.C., (behind camera) checks focus for a closeup of a player in an industrial film recently produced in the St. Paul, Minnesota studios of Reid H. Ray Film Industries. The Ray Studio, one of the most complete outside Hollywood, utilizes the most modern camera and lighting equipment in producing 16mm and 35mm industrial, advertising and TV commercial films.

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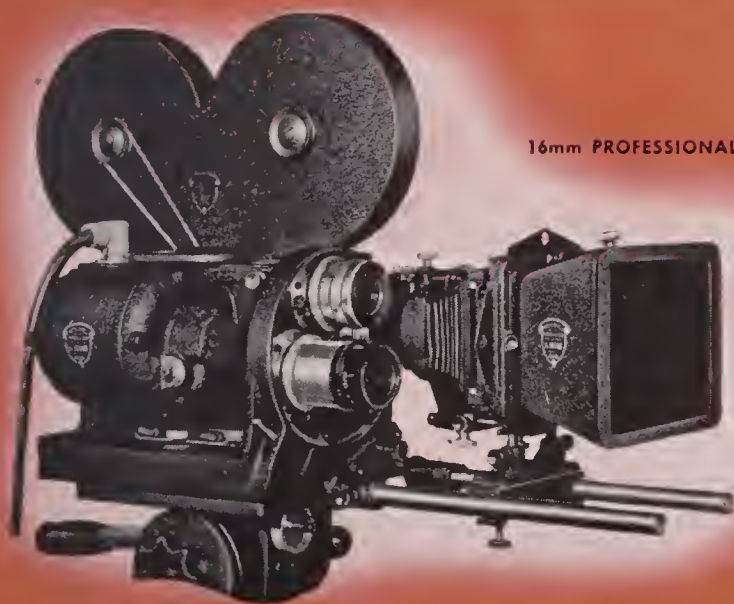
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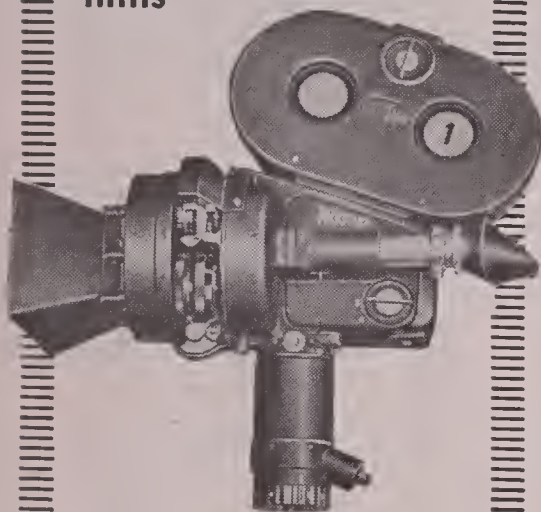
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Hollywood Bulletin Board



Up in the air for RKO is Nick Musuraca, ASC, (right) who directed the 3-D color photography of "Arizona Outpost," using the Natural-Vision stereo camera.



Set to photograph "The Bridges at Toki-Ri" November 1st, Tom Tutwiler, ASC, (front, center) last month spent five days at sea on pre-production survey cruise.

ROBERT L. SURTEES, A.S.C., who leaves for Africa soon to photograph a production there for Metro-Goldwyn-Mayer, spends his spare time editing the hundreds of feet of 16mm movies which he has filmed during his many recent foreign assignments (Italy, Africa, etc.). When completely edited the films will be soundstripped and Surtees will record narration for them with his Bell & Howell "202" recorder-projector.

graphed such popular video film shows as "Red Skelton," "Big Town," "Dick Tracy," and others.

EDWARD COLMAN, another TV film photographer, also was admitted to membership in the ASC the previous month. Colman directs the photography of the popular "Dragnet" TV film series for Mark VII Productions at the Walt Disney Studio. Prior to this assignment, Colman had directed the photography of a number of feature films for London Films, London, England, under such well-known film directors as Victor Saville, Alex Korda, and Zoltan Korda.

HAROLD STINE, who directs the photography of the "Superman" series of TV films, was admitted to membership in the American Society of Cinematographers last month. At one time a special effects photographer at R.K.O.-Radio studios, Stine entered TV film production about two years ago and has photo-

GREER GARSON'S favorite cameraman.
(Continued on Page 456)



Carey Wilson (left) and Jesse L. Lasky last month presented Screen Producers Guild award to Univ. of So. California's Herbert Skobel for student-produced "Let Me See."



Is Lee Garmes, ASC, (left) next cameraman to graduate to ranks of film directors? Garmes, along with actor John Ireland, recently co-produced two 3-D successes.

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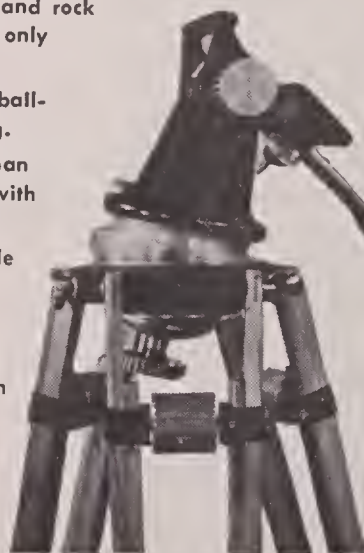
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3-D

and WIDE SCREEN News Roundup



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Just When A Lot of important people last month were predicting an early demise of 3-D—were strong in their beliefs that 3-D just wasn't here to stay—three important things happened in Hollywood to prove that 3-D movies can and probably will be with us for a long time yet.

First of all, representatives of the Nord Company of Minneapolis came to Hollywood to show major studio executives and theatre men a gadget they have devised, which enables the twin-films of 3-D to be put on one film strip and be projected with a single machine. This, the Nord men say, offers the advantage of insuring correct and distortion-free projection of 3-D films, plus eliminates the need for dual-projector operation for stereo film programs. With the Nord system, film programs can be run just like flat picture programs.

About the same time, an obscure projectionist at MGM studios perfected a new zoom-type projection lens which enables exhibitors to handle wide-screen pictures of all aspect ratios, without having to buy separate sets of lenses for each. Thus, a 3-D picture shot for a certain aspect ratio can be screened that way without the need for the theatre owner to purchase a special set of projection lenses. The one lens handles all aspect ratios, from 1.37-to-1 to 200-to-1.

The following week, representatives of the Polaroid Corporation, Cambridge, Massachusetts, unveiled for the Motion Picture Research Council, an electronic system which detects any out-of-sync condition in 3-D projection and enables the projectionist to correct it. The demonstration proved beyond doubt that there can be such a thing as distortionless, non-eye-irritating 3-D movies when they are screened with the Polaroid mechanism in control.

All three of the innovations briefly described above will be explained in greater detail in articles which are to appear in the October issue of *American Cinematographer*.

The Polaroid Corporation has contributed still further to the improvement of 3-D, and especially to the comfort of the 3-D spectator by replacing its original model Polaroid viewing spectacle with a new improved model. Latter has larger lenses and a wire-reinforced

frame, which insures more comfort for the wearer. The reinforcement feature overcomes the big fault of the earlier model which would never "stay put."

Despite These Important developments, of the thirty feature films shooting in Hollywood the closing weeks of August, only five were being filmed in 3-D.

Producers, exhibitors, reviewers and the movie-going public are still pretty well divided on the matter of 3-D movies; but once the above-mentioned improvements are put generally into effect, much if not all objection to 3-D will probably disappear. It is likely that 3-D will be accepted as a permanent classification or type of motion picture to be utilized when the production is especially suited to the medium.

In The Realm of wide-screen movies, perhaps the only development of note last month was the unveiling in Hollywood by Carl Dudley of the new Vistarama system. Before a large gathering of the press and studio technical men, Dudley screened a two-reel short subject on Hawaii, which was photographed by Edwin E. Olsen. Vistarama is an anamorphic lensing system, similar if not exactly like that of 20th Century-Fox's CinemaScope. The Hawaiian scenes, filmed in Eastman Color, were sharp and clear edge to edge. Notable was the fact there was a minimum of "dishing" of the horizon line on distant shots, something which marked earlier panoramic screen movies.

By contrast, a second Vistarama reel comprising tests shots filmed indoors on a sound stage were lacking in depth. Here, focus in many shots failed to carry beyond a few feet, although the sets appeared to be lit in sufficient volume to permit filming with the lens reasonably stopped down. This difficulty, we are told will soon be corrected.

Returning From a Tour of several eastern cities where they canvassed man-in-the-street opinion on effect of current Hollywood production pattern, Paramount producers Wm. Pine and Wm. Thomas voiced objection to recent industry efforts to standardize movie production under any one particular system. "The day of the 3-D and flat picture is far from over," they said.

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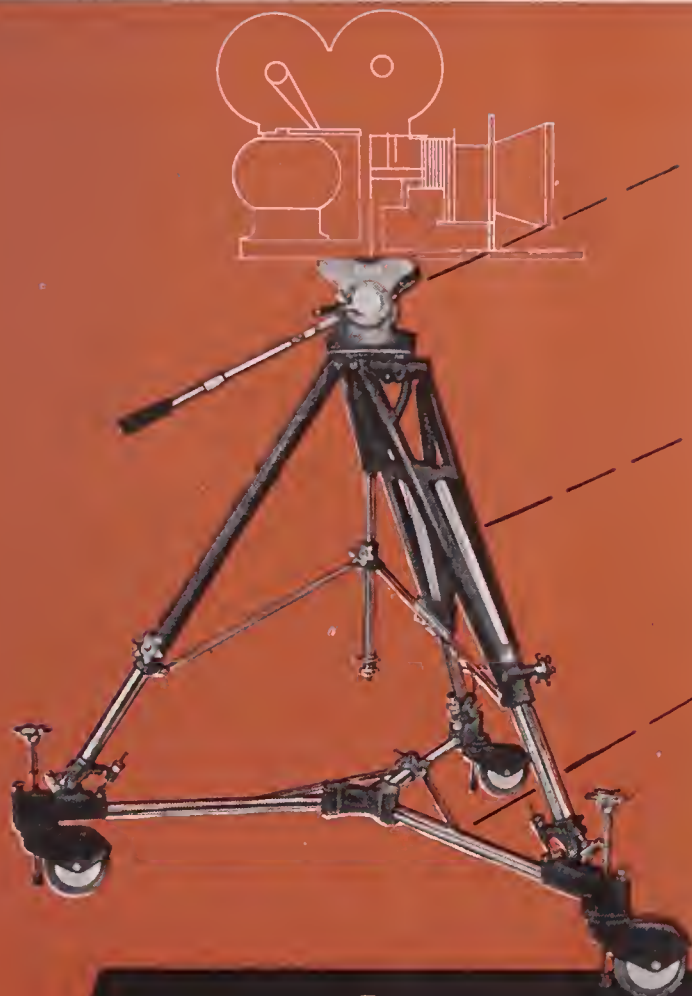
Provides smooth, easy panning and tilting of cameras. Pans 360° on ball bearings. Tilts 45° up or down with camera counterbalanced at all times. Variable drag and brake are provided on both pan and tilt. Adjustable handle. Fits Houston-Fearless and other standard tripods, pedestals, dollies and cranes.

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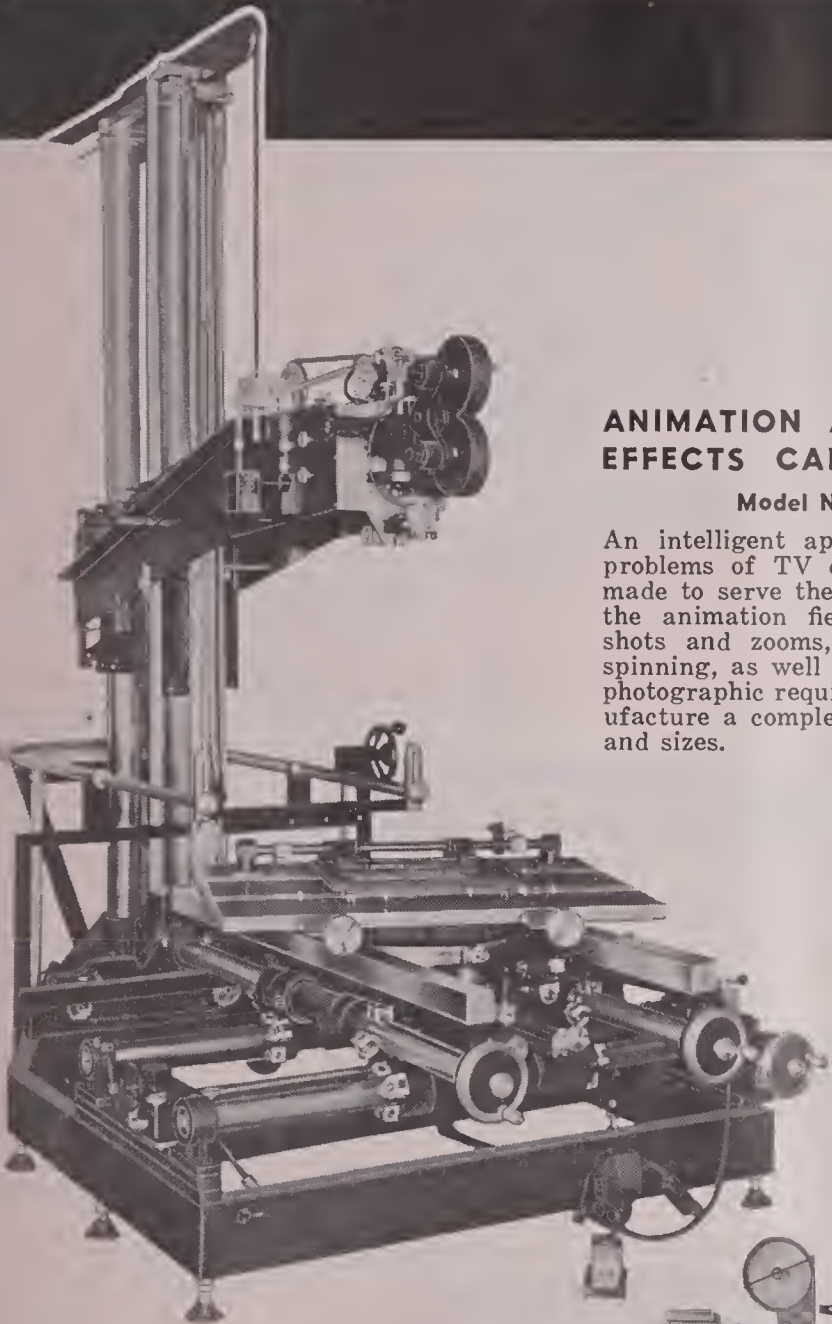
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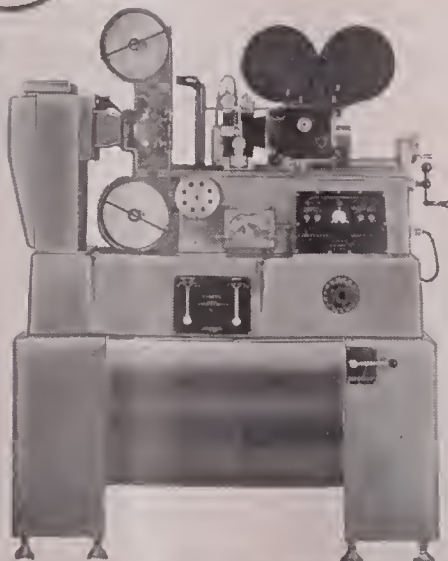
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What's New...

In Equipment, Accessories, Services



Giant Telephotos — Telephoto lenses for motion picture cameras, some ranging up to 40 inches in focal length, are now being distributed in the U. S. by Ercona Camera Corp., 527 Fifth Ave., New York 17. Lenses are available in mounts to fit most 16mm and 35mm cameras. Dual mounts also may be had so lenses may be used interchangeably on still or motion picture cameras. Prices range from \$195 to \$1,250.

Color Duplicating Film — McGregor Products Co., 16 State Street, Rochester, N. Y., makers of 16mm and 35mm color films, announces a new color duplicating film in both 16mm and 35mm and in single and double perforation. Film is designed for making quantity color prints of motion pictures and film strips.

McGregor color film is of the subtractive type, the dyes being added during the selective reversal processing. Film is coated on a tri-acetate safety base. A magnetic sound stripe may be added before processing, since the antihalation backing is on the emulsion side.

F/1.9 lens on the Brownie — Eastman Kodak Company, Rochester, N. Y., announces that a new model of the popular-priced Brownie Movie Camera will feature an extra-fast f/1.9 Kodak Cine Ektanon fully Lumenized lens. New lens is pre-focused so that Brownie simplicity and picture taking ease are carried over to general movie making. With exception of the new lens, the camera is identical with the standard f/2.7 model. List price of the new model is \$49.50.

Norwood Meter Conversion — Director Products Corp., 570 Fifth Ave., N. Y. City, announces that owners of earlier model Norwood Director exposure meters may have them converted to the new Color-Matic model for a total

(Continued on Page 420)

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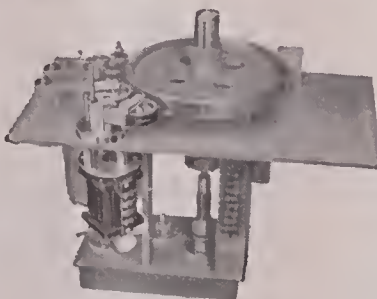
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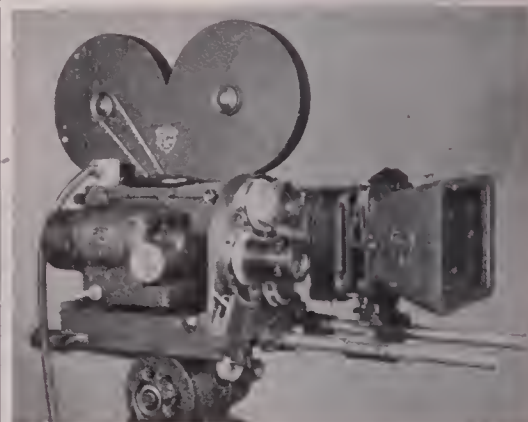
(Continued From Page 418)

cost of only \$12.50. This service is obtainable through any photo dealer. Older meters are fitted with the new Color-Matic control slide, plus a new, larger, and easier to read scale. Entire meter is then tested, re-calibrated and completely overhauled.

Frost Increases Equipment — Jack Frost, 234 Piquette Ave., Detroit, Mich., supplier of motion picture lighting equipment on a rental basis, has increased his stock of modern lighting equipment that will enable him to offer rental service on a national scale. New equipment includes a quantity of 2000-watt Century Lekolites, which may be converted from flood to spot lights, plus a number of Strong Trouper arc lights. Also available are Western track dollies and portable Cine Pro camera dollies.

For rental plan data, write Jack A. Frost, Dept. J, at above address, mentioning *American Cinematographer*.

16mm Mitchells — Mitchell Camera Corp., 666 West Harvard, Glendale 4, Calif., announces that for the first time immediate delivery of Mitchell 16mm cameras is available. Receiving immediate delivery on their orders for Mitchell "16's" in recent weeks were:



Eastman Kodak Co., Rochester, N. Y.; Veterans Administration, Wash'n., D. C.; Sturgis-Grant, New York City; Rainbow Pictures, Miami, Fla.

Descriptive brochure and price information on the Mitchell "16" may be had by writing the company and mentioning *American Cinematographer*.

New S.O.S. Catalog — S.O.S. Cinema Supply Corp., 602 W. 52nd St., New York 19, N. Y., has just issued its latest catalog of equipment and accessories for motion picture and TV production. Catalog marks company's 28th year, and is largest ever issued by the company.

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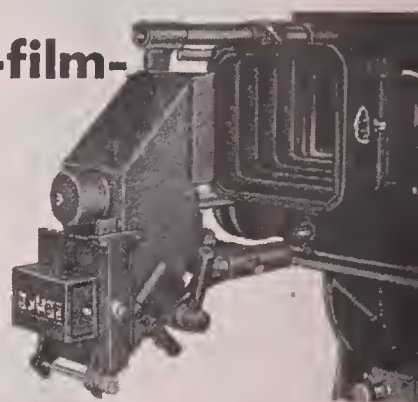
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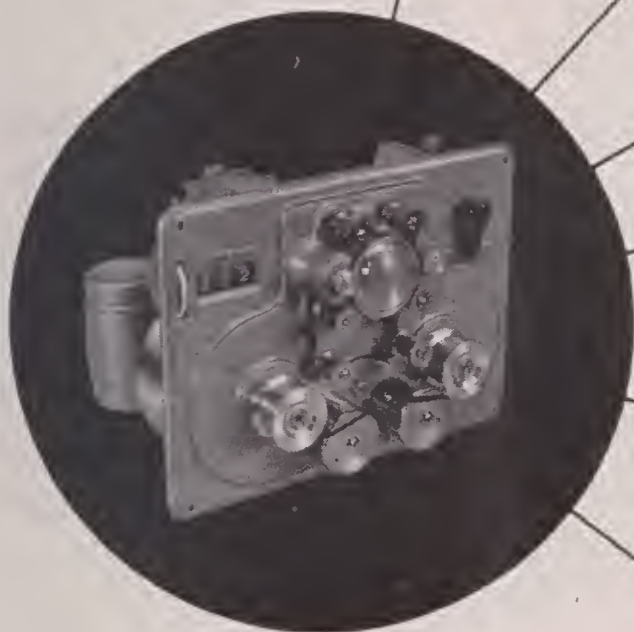
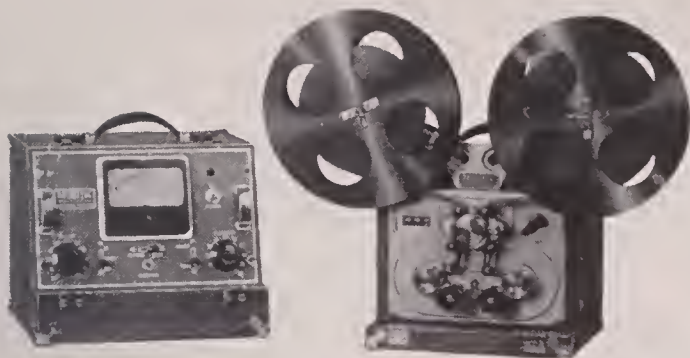
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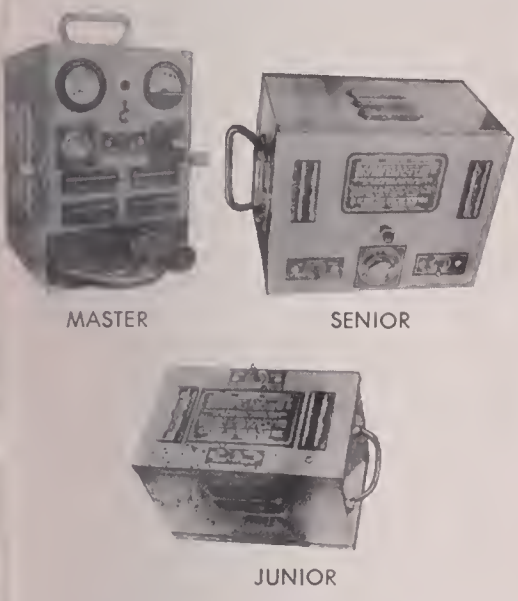
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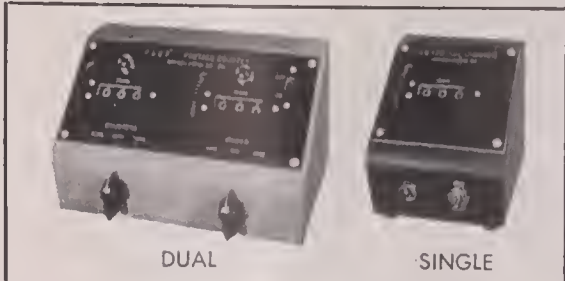
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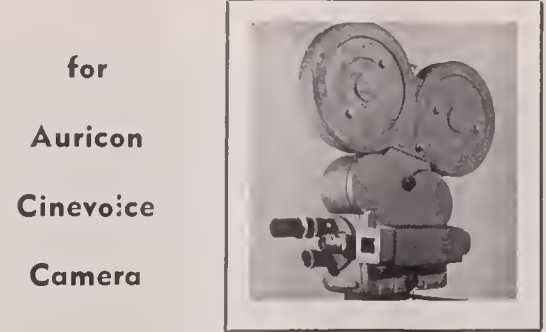
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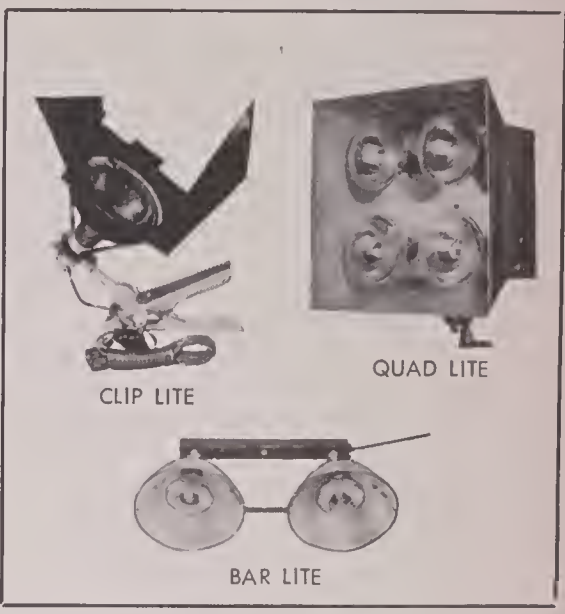
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PARAMOUNT PICTURES' 3-D camera, thanks to aid of Army transport units, was readily moved from one rugged location site to another in the battle zone. Peering through finder at left is director of photography, Ellis Carter, A.S.C.

Filming A 3-D Feature In The Korean Battle Zone

**Ellis Carter, A.S.C., with assist from the
Army, photographs feature film in battle
zone during closing days of Korean War.**

By GENE M. BROOKS

Captain, United States Army, Film Project Officer

IT IS TRADITIONAL in the motion picture business that many demands, some reasonable and some not so reasonable, are made upon cameramen. But I wonder if many have worked under conditions as unusual as those which challenged Ellis Carter, ASC, who directed the photography for the Hal Wallis-Paramount-Owen Crump unit which recently filmed a feature in 3-D in Korea. True, many film units have photographed background material in Korea, and the newsreel people have done commendable and spectacular work there under arduous and difficult conditions.

Here is the situation which made this project so unique and challenging: first, this is the only motion picture unit to film a full-length feature entirely in a combat zone; secondly, this is the first American film to be made "on the spot" where the action was happening, using actual persons portraying themselves; and in this case, the "actors" were seasoned front-line combat soldiers. Third, and most unusual, the film was made entirely in three-dimension and was the first to be made by an American company outside the United States.

The project was undertaken by Hal Wallis, in association with Paramount. It was Hal Wallis' vision and imagination which made possible the undertaking of such an unprecedented project. After completing arrangements with the United States Department of Defense and the State Department, the production unit arrived in Korea in early June to commence filming. Within a few days after arrival the crew was living in tents and bunkers in the forward areas of the 7th U. S. Infantry Division within three miles of Old Baldy and Porkchop Hill.

To those of us in the Army who were assigned to work with the unit, surprises were in order immediately. In the first place, one look at the size and bulk of the 3-D camera told us that this would be a project of some extra proportions. As project officer I had to figure some way that the camera and sound equipment plus the other necessities of picture making could be transported into location areas. After many trials with such transport equipment as two-and-a-half ton trucks, medium tanks and tank retrievers, we found the best way to move the camera was to carry it on an M-39 armored personnel carrier, which is built like a tank but has a flat deck and an area for carrying personnel. This vehicle was found to be best because it could carry the camera smoothly and carefully into areas where trucks could not move; also the vehicle was maneuverable enough to climb over obstacles and into areas where even tanks would have some difficulty. I didn't tell the

crew about an additional reason for using the armored carrier, but they soon figured it out for themselves: The heavy steel-plated vehicle is a convenient moving "foxhole," in the event artillery rounds are encountered, and also offers fair protection against unmarked anti-personnel mines.

Two days after arrival of the unit in the 7th Division area, we were filming actual company and platoon size installations upon the most forward blocking position at the entrance to the Chorwon Valley, in the historical and traditional invasion route from North Korea to Seoul. This beginning was only typical of many surprises to come.

The next problem came when we began filming of re-enacted actual combat situations in the area in which they were happening. There is little use in Korea for "blank" ammunition so it was mutually decided that we would use the real stuff. It is a disturbing and not altogether comfortable thing to see tracer ammunition, live grenades and 105mm artillery pieces fired within inches of a valuable camera and its preoccupied crew. I'm glad to say that there were no casualties. The American GI is notoriously a good shot with his M-1 and his carbine, and it is a good thing for picture making that this is true.

The entire crew from the States consisted of seven men: Owen Crump, Director; Jack McEdward, Unit Manager; Ellis Carter, Director of Photography; Camera crew: Bob Rhea, Fritz Brosch and John Leeds; and Jim Miller on sound. Korean truck drivers and laborers were hired to assist, but with the language difficulty and a seemingly natural Korean reticence to tackle anything new, it ended up that the stateside crew "chogied" more heavy equipment

up higher mountains than a whole country full of Koreans with their "A" frames. Everyone pitched in and did a major-sized unit job of making this an authentic and real portrayal of front-line and supporting activity in Korea.

For one area selected as a battle position, Ellie Carter decided that if it was to look as bald as Old Baldy, we needed the hill messed up a bit for his camera. Before he was satisfied, we used up over four hundred pounds of demolitions, 250 gallons of napalm and uncounted numbers of live grenades and white phosphorous charges. Our "special effects" department was the 13th Engineer Battalion of the 7th Infantry Division, and Lt. Dave Bills and Ellie Carter blew up more terrain than happens in many good sized battle actions. All this, of course, had been done in areas which were fought over only a short time before filming began, and in some cases had been re-fought over again.

Each one among the crew undertook several jobs, which certainly would not ordinarily be called for in the studio. One of the most interesting of these extra-curricular jobs came during the course of filming a sequence in which we were shown probing for mines. Paramount was understandingly eager to get this sequence completed in order to move on to other shots before the unpredictable weather took over. So rather than wait for the arrival at the location of the soldier who had been previously scheduled to do some special falls and get blown up in the process, Fritz Brosch, the special technician with the unit, volunteered to do the stunt. Fortunately, to preserve the unity of the crew, the GI who had been selected in advance to perform the spectacular fall arrived at the location in time to pre-



ARMY'S M-39 armored personnel carrier served as camera car and convenient moving "fox hole" for crew in event of surprise attack.

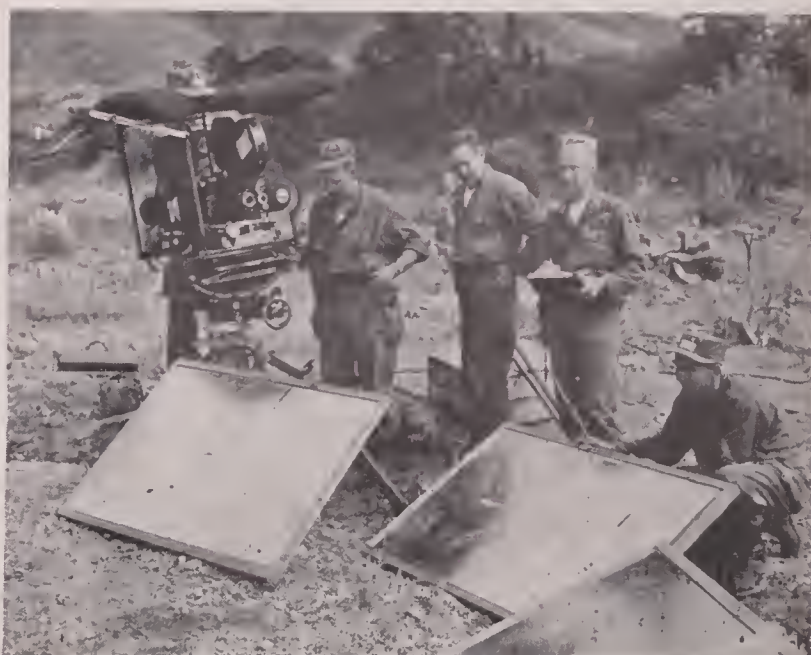
vent a possible casualty among the Paramount crew; but such spirit was typical of all activity on the part of the technicians from California and the GIs in the making of this film.

There were many minor problems concerned with shooting which could not be anticipated in advance. The first one to arise was due to the fact that all water used by U. S. Forces in the front

(Continued on Page 449)



SHOOTING front line patrol action for sequence in Paramount's forthcoming "Cease Fire." One of the toughest locations in which company worked, only limited equipment could be used.



CARTER (left) contemplates changing angle of one plywood and foil reflector. These often proved too "hot" for fill light requirements for close shooting.

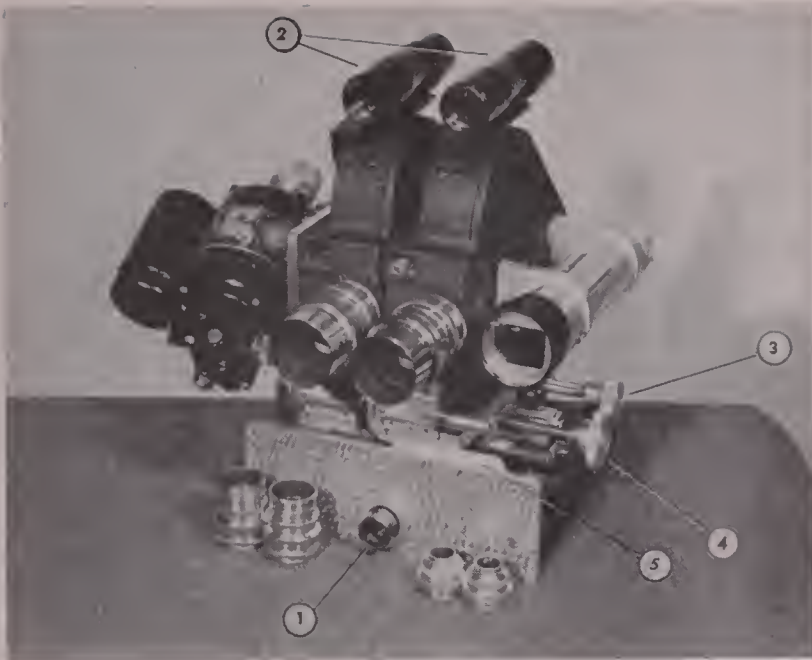


FIG 1—Camera set for 2 1/4" minimum interaxial. Features include: centerline finder (1); convergence finders (2); convergence adjustment (3); interaxial adjustment (4); and interaxial scale and pointer (5). The zoom finder is on left side of camera; the sync motor on right.

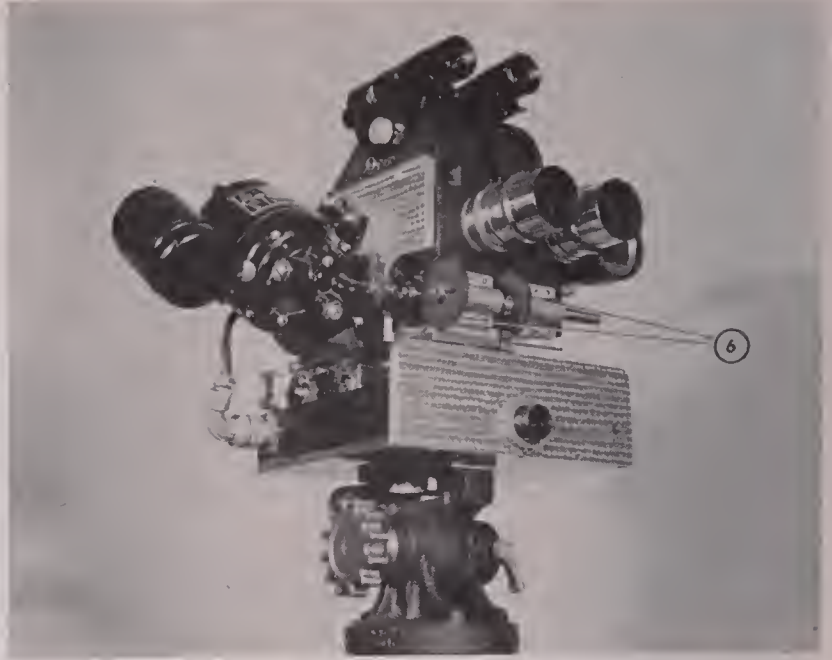


FIG. 2—The interlocking gears (6) slide on a flexible shaft which bends with cameras as they are angled for convergence. The Model E. Cine Kodaks were chosen because of their adaptability to simple mechanical interlock.

A Stereo Camera for Two-Strip 16mm 3-D Photography

AMONG THE TECHNICAL men who have recently designed and built 3-D motion pictures cameras in Hollywood, one in particular has directed his talents toward the production of an efficient camera for 16mm stereo movies. He is Fred Parrish, of Culver City, California, a veteran newsreel and still photographer, and more recently a mechanical engineer well-known for the zoom-type viewfinders which he manufactures for use on professional and amateur motion picture cameras.

Last month, Parrish unveiled his new 16mm 3-D camera after concluding exhaustive field tests that proved the camera an ideal instrument for filming commercial 16mm stereo motion pictures. Its potential use is in the production of sales, industrial, educational and training films.

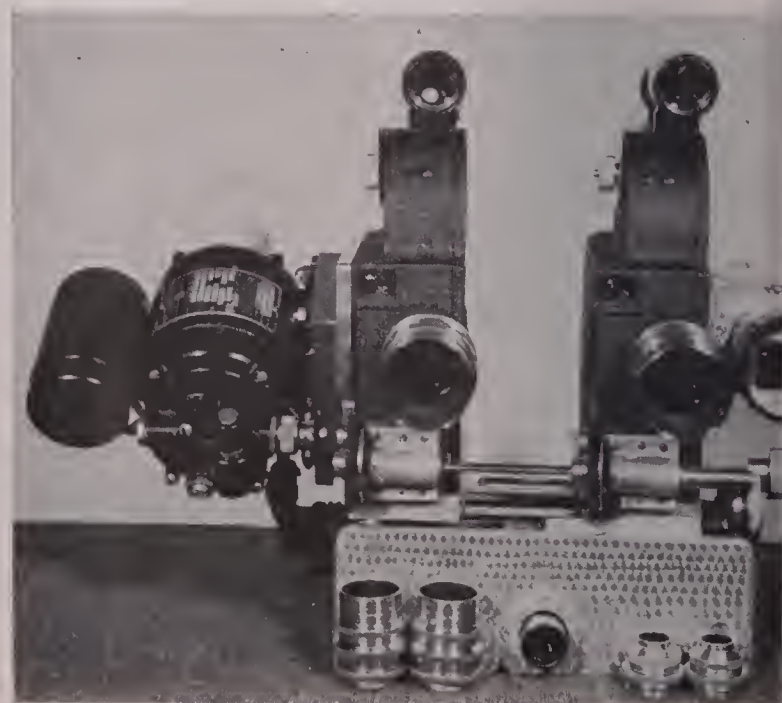
Parrish's 3-D camera, pictured on this page, consists of two Eastman Model E Cine Kodaks. The coupling of these cameras for stereo cinematography follows the best professional methods which have been employed in building the 3-D cameras presently in use in the studios.

The two cameras are mechanically interlocked and mounted on a base which in turn may be mounted securely on a

Two Model-E Cine Kodaks form basis of this newest 3-D filming unit which has all the features of the best professional cameras.

By FREDERICK FOSTER

FIG. 3—Cameras extended for maximum interaxial—2 1/4 inches. The flexible shaft which controls this adjustment has right and left threads, so that both cameras move exactly the same distance with each revolution of the control shaft. The lenses shown are factory-matched, and made by Wollensak Optical Company.



conventional professional tripod and pan-head.

Parrish chose the Model E cine camera — now a discontinued model — because its film transport mechanism lends itself readily to simple mechanical interlock. Moreover, the camera being narrow in width, permits close setting of the lenses for a minimum inter-axial spacing. Its “humpback” styling not only gives it impressive appearance when coupled in pairs, but provides an ideal mounting for the telescope finders which are used in setting camera convergence.

In the base of the camera is the center-line finder (1), which is standard on most dual-camera 3-D outfits. The twin convergence finders (2) are on top of the cameras. Each has a centering reticle—a tiny dot on one lens element—which is in exact alignment with the optical axis of the camera lens. The convergence finders are readily detachable; each is marked for “right” and “left” and the mounting brackets are precisely machined so that each finder is accurately seated each time it is mounted.

The two cameras, which are pre-set for horizontal alignment, are adjustable laterally for the required interaxial spacing by turning the knob (4, Fig. 1), which is located just below the viewfinder on left side of the camera. Horizontal alignment of both cameras was set by precise optical methods during assembly. This, said Parrish, is extremely important to the production of distortion-free 3-D films, because an error in this alignment, no matter how small, is highly magnified by the time it reaches the screen.

The flexible shaft which controls the cameras in this operation has right-and-left threading. Thus, as the two cameras move progressively away from or toward the center line, they move exactly the same distance for each revolution of the shaft.

This is also true of the convergence adjustment, controlled through knob (3)—the two cameras swing away at the rear in uniform spacing whenever it is necessary to change convergence. The convergence and interaxial can be altered while the cameras are recording, when making follow shots, or when filming a player walking toward the camera. These changes are effected by turning knobs 3 and 4, as required. At present there is no convergence scale on the camera; however, this is soon to be remedied. A calibrated scale (5) and pointer are provided on the front of the camera to indicate the extent of lens separation in inches when setting the camera for the required interaxial spac-

ing. The camera permits a minimum interaxial of $2\frac{1}{4}$ inches, and a maximum of $4\frac{1}{2}$ inches. The scope of convergence is from 4 feet to infinity.

The lenses which Parrish has selected for the camera are factory-matched and manufactured by Wollensak. These range from 17mm wide-angle to 3-inch. He points out that extreme wide-angle lenses cannot be used on this camera because of the limited minimum interaxial of $2\frac{1}{4}$ inches. To use a 15mm or 12mm wide angle lens would require an interaxial of about $1\frac{1}{2}$ inches, he said.

“An advantage in using the Wollensak lenses,” said Parrish, “is the fact we can make follow-focus shots for reasonable distances without need of changing the stop during the take; we merely change the convergence. This is because the Wollensak lenses have great depth of focus.”

Complementing the lenses is the Parrish-designed zoom-type viewfinder, shown camera-left in Fig. 1, which indicates the exact field of lenses ranging from 15mm to 150mm in focal length, and which provides manual parallax adjustment.

Powering the twin cameras is a Bodine 110-volt, 60-cycle A.C. synchronous motor, having an rpm speed of 1800. This is stepped down to 1440 rpm through reduction gear, which drives the cameras at uniform 24 fps speed. An “off-on” switch is mounted directly on the motor, and there is a plug-in recep-

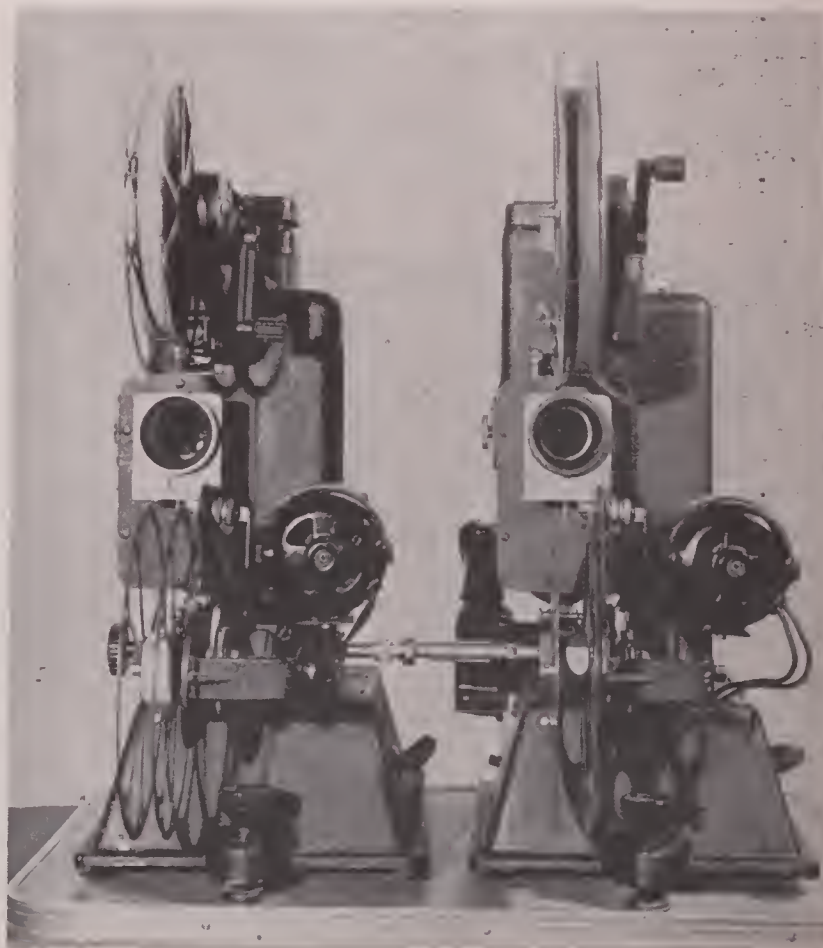
tacle for a work-light when the camera is to be used under low light levels or in a blimp. The entire camera, including motor, weighs but 25 pounds, making it an ideal instrument for many professional 3-D filming applications.

To load film in the cameras, they are first racked out to the maximum distance — $4\frac{1}{2}$ inches — by means of the interaxial adjustment knob. The doors are then removed and the film rolls inserted and threaded. One interesting point not previously mentioned is the ingenious way the individual camera interlock gears, shown at (6) in Fig. 2, remain engaged on the drive shaft, no matter what spacing the cameras are set in the interaxial adjustment. The shaft driving the gears is a flexible one, designed thus to provide smooth driving action for the camera mechanisms, even when they are angled for extreme convergence. The shaft simply bends with the angle adjustment. The gears are keyed to the shaft so they slide upon it whenever the cameras are adjusted laterally for change in interaxial spacing.

Filming with the cameras is a comparatively simple process. Parrish recommends use of the Motion Picture Research Council's 3-D Calculator, described in last month's issue of A.C., as a guide in determining the correct set-

(Continued on Page 450)

FIG. 4—Two early type Model-A Eastman 16mm projectors were coupled together for screening films made with Parrish's 3-D camera. The interlock consists of two universal joints and a flexible shaft. The machines operate by the original motors, both turning simultaneously, but with one set at slightly higher speed to provide constant drag that maintains the necessary synchronization.



SHOOTING A 16MM TRAVEL FILM IN 3-D

Simplicity of 16mm stereo equipment plus pictorial enhancement that 3-D gives to scenic compositions makes the new medium ideal for travel and lecture film photography.

By ERNST WILDI

Manager, Bolex Division, Paillard Prod., Inc., New York, N. Y.



THE AUTHOR, using Bolex Stereo, captured many picturesque compositions such as this for "Bermuda, Isle of Dreams," first 16mm travel film in 3-D.

THE POTENTIALITIES of 3-D as a medium for travel films are demonstrated in "Bermuda, Isle of Dreams," which I produced recently for the Bermuda Trade Development Board. This is probably the first commercial travel film made in 16mm stereo. The pictorial enhancement which 3-D is capable of lending to travel films portends a new era of production in this field in which stereo will bring to the screen the beauty of new and interesting countries throughout the world with an effect far surpassing that of 3-D in feature films.

Unquestionably, the superiority of the use of stereo for such films will soon attract the attention of many 16mm film producers as well as the advertising and travel agencies. Because the Bermuda Trade Development Board has been a leader in promotional ideas, it was only natural that it would be among the first to recognize the vast potential of 3-D for its travel films. It is believed the Board is the first to promote travel with a 3-D film in 16mm color.

I assigned Gerry Kirk, well-known script writer of commercial and theatrical short-subject films to write the script. Kirk's renown includes credit for collaborating with Owen Crump on the award-winning Warner Brothers' short subject, "Land of Everyday Miracles."

After reading considerable travel literature on Bermuda and making a two-day preliminary survey trip to the islands, Kirk and I decided on "dreaming" for the theme of the film—as the title indicates. And since we felt the film would tell its own story as it unfolded on the screen, the narration we added in the concluding phase of production was kept to a minimum.

The moment we arrived in Bermuda, we were at once impressed with the wealth of stereo subject material the islands had to offer the photographer: objects for foreground framing such as colorful flowers, beautiful trees and tropical plants, pastel-tinted homes with their whitewashed roofs sparkling in the background, and the fantastic coral rock formations dotting the surf-washed beaches ringed by almost unbelievable blue waters. Needless to say, the scenery not only proved ideal for movie making but also added a great deal of enjoyment to our work.

Filming was done with a 16mm Bolex camera and Bolex Stereo—the first complete stereo system for 16mm. It should be noted that the production of a 3-D film differs somewhat from that of an ordinary flat film. There are certain photographic rules which must be followed, most of which have been ex-



SHOOTING almost straight up while lying flat on the ground proved best angle to shoot the model on the ladder at Gibb's Hill lighthouse, Bermuda.

plained in articles in previous issues of this magazine. (See "How To Shoot 3-D Movies In 16mm" in June, 1953, *American Cinematographer*.—Ed.)

To prevent foreground objects from appearing out in front of the screen during projection, thereby giving an unnatural, cropped-off effect, all foreground objects were kept at a distance of not less than ten feet from the camera. For closeups, of course, I shot at a distance of 40 inches, using the Bolex Stereo No. 1 closeup lens, and at 24 inches, using closeup lens No. 2.

Frequent use of foreground objects in 3-D compositions does not, as some may think, make a movie monotonous. Actually, it adds much to a stereo movie, not only in depth, but in pictorial value. On the average shot, keeping foreground objects between 10 and 20 feet from the camera proved most ideal. On the screen, the objects appear just behind the screen or "stereo frame."

The method I followed to determine the best camera position was to remove the finder from the camera and walk around the scene or subject, studying it through the finder until foreground and background components were nicely framed. This involved a matter of some minutes, which proved the wisdom of using just the finder for this purpose instead of carrying around the entire camera. Using the lighter-weight finder, one can more easily pursue the possibilities of unusual camera angles while flat on one's back or perhaps perched up in a tree. Indeed, while filming near famed Gibb's Hill lighthouse, we discovered a picturesque rope ladder nearby, which led to a tall flagpole used in signalling to ships at sea. It looked like an excellent place to pose

a model for a stereo shot, but to include the top of the lighthouse in the background required shooting almost straight up while flat on my back.

Whenever the "out-of-the-screen" effect of stereo could be employed for good reason, it was used in the production; but it was not overdone. Objects coming out of, or appearing in front of, the screen are rightfully termed "stereo effects" due to the novel impact such effects have upon 3-D audiences. Such effects were obtained by having subject between 5 and 10 feet away from the camera. (32 to 40 inches when closeup lens I was used; 20 to 24 inches, using closeup lens II.)

For the guidance of other 16mm filmmakers who would attempt such effects in 3-D movies, here are two important rules to remember:

(1) Subject should be so framed that it does not touch the margins of the finder area at any point; otherwise the stereo-illusion of subject coming through the screen will not be entirely convincing. With some objects, such as a tree or a person, this sometimes cannot be avoided, and in such instances objects should never be closer to the camera than ten feet.

(2) Stereo effects should fit logically into the movie and not be added at random in order to create a few laughs or to shock the audience. A stereo effect improperly used is more disturbing than entertaining, especially in films of documentary nature, such as "Bermuda, Isle of Dreams." Nothing is added to a film by having a flower, however beautiful it may be, apparently suspended in mid-air from the screen. Rather it should be photographed in all



ULTRA-CLOSEUPS of flowers were filmed with the subject held by assistant before camera and using plain blue sky for backdrop. Attached to the Bolex Stereo was a Bolex closeup lens.

its three-dimensional beauty properly placed *behind the stereo frame*, where one naturally expects to see it.

Some of the stereo effects which were included in the Bermuda film included a shot of a single leaf of a palm tree jutting out toward the camera; the rolling surf crashing onto the rocks and throwing back spray towards the camera only 12 feet away; and a golf and tennis ball zooming out into the audience in a sequence picturing favorite Bermuda sports.

"Bermuda, Isle of Dreams" includes a number of scenes filmed with the Bolex Stereo closeup attachments—closeups of colorful flowers, model's faces, fish and turtles behind glass at the fascinating Government aquarium, and black fish

(Continued on Page 446)



EXAMPLE of carefully planned setup for 3-D composition for a night sequence for the Bermuda travel film. The Bolex 3-D camera is at far left. The depth composition begins with full-lighted couple in foreground. Additional photolamps illuminate couples on dance floor.



ONE OF THE most interesting sequences in the film is the series of shots made in Bermuda's underground caves. Here five No. 2 photoflood lamps in reflectors mounted on standards were used to illuminate the great depths and the highly colorful formations.



YOU'LL PROBABLY choose one of the popular magnetic recorders for your first sound production. They're simple to use and provide advantages not found in optical sound systems, chief of which is ability to immediately play back tracks for approval or correction. Here a non-professional group records sound for a college film production in 16mm, using magnetic equipment.

Preparing the Sound Track

If you are planning your first sound-film production, this summary of recording procedure may save you time and money.

By CHARLES L. ANDERSON

NO MANUFACTURED ARTICLE in the world, perhaps, is so standardized as sound motion picture film. A 16mm or 35mm print can be run on any sound projector of the respective film size, with perhaps only a slight adjustment necessary for sound volume. But however well the finished product conforms to certain standards, the methods of putting together the original sound recordings are surprisingly numerous.

More than one independent 16mm film producer has found himself floundering in a maze of sound tracks when producing a public service or small commercial film on his own for the first time. He suddenly learns that tracks must be set up to fit the re-recording facilities on hand and that decisions

must be made about procedures that, until beginning sound work, he had thought were all cut-and-dried.

Even those film makers who never edit their own pictures may face questions of matching their sound system for a dialogue scene to the equipment at the editing rooms and sound studio. A mistake in choosing between single- and double-system optical, or magnetic film and magnetic tape, could mean a loss of time and money.

A sound film may or may not involve re-recording. That seems to be the basic division of the many methods in use. Single-system sound films for television are usually shown without re-recording. Filmed interviews, political talks, and simple commercials fall into

the single-system category, and seldom require the addition of music or sound effects which involves re-recording. With more complex films, re-recording can be avoided if the background music and sound effects are played from phonograph records as the narrator reads his talk. This method long has been in use in commercial studios such as Telefilm in Hollywood, and makes it possible for one recording session to accomplish the work of two.

Soon after the movies learned to talk, basic methods of preparing tracks and "dubbing" were established, and they remained virtually unchanged in 35mm work until magnetic sound arrived. Film companies have solved the problem of adding music and sound effects to the finished film by playing them on "film phonographs" along with the dialogue tracks. The sound impulses from the several different tracks are monitored at control boards and fed together into a film recorder. In this basic system, as many reels of sound track must be prepared as there will be different sounds blended at one time. Feature films commonly have two dialogue tracks, two music tracks, and two or more sound effects tracks. And since features are generally from six to eight reels in length, one can imagine how fast sound tracks pile up in the editing room.

The different sound tracks prepared for each reel are combined during re-recording, or dubbing, sessions. (The term *dubbing* is also frequently used to mean the recording of dialogue to fit a scene



USE OF CLAPSTICK and slate makes it easy to put sync marks on both picture and sound films. These are matched up in editing to insure synchronization.

that was shot without sound.) In this operation the dubbing engineer and his assistants project the picture work-print in sync with the reels of sound track played on a film phonograph. When the sound tracks have been balanced correctly in trial runs, they are played again and recorded.

The Hollywood method of setting up and dubbing from multiple sound tracks has also been used with success for 16mm productions. Until magnetic sound systems appeared, the main difference between 35mm and 16mm re-recording was that there was often a danger of losing fidelity with the smaller film. The width and traveling speed of 35mm sound tracks are quite a bit beyond the minimum standards for good reproduction; those for 16mm tracks just about equal minimum requirements. (Within the last few years improved recorders and new film emulsions have been placed on the market that produce improved sound quality on 16mm, but the demands for still better quality continue. Television film equipment and new theatre-type 16mm projectors demand and are prepared to handle better quality sound than is presently available.)

Installations of first-rate 16mm optical film phonographs have never been very common, and producers outside the biggest cities often use regular film projectors for dubbing. One machine projects the picture work print, while others handle the various tracks. Equipping these machines with the necessary synchronous or interlock motors is an extra expense, but it assures sound

tracks in exact synchronism. This feature is especially necessary for lip-sync sequences and for sound effects that closely match screen action.

The projectors and recorders used should be in perfect condition for re-recording, otherwise sound distortions will be increased. Errors in the original sound negative will be amplified considerably when the print is played into the same recorder. Generally, music receives preference where quality is concerned. For this reason the music track is often played on the best projector or film phonograph. When an editor takes his music from phonograph records, as is done for most 16mm industrial films, he may wish to have the disks played on a turntable during the dubbing rather than transfer them to optical film before the final recording. This procedure eliminates the distortions of one recording-and-playback cycle.

Film technicians agree that magnetic sound is the most important development in motion picture sound work of the last twenty years. Although Hollywood studios have the largest dollar investment in magnetic equipment, its influence has been strongest in the non-theatrical field. Industrial, educational, and television film producers have been the first to benefit from magnetic's advantages. Preparing sound tracks has been complicated in some ways by the addition of magnetic equipment. But once a given program is agreed upon, it's as easy to use as the optical system.

A typical industrial filming application of magnetic sound is found in the set-up of one San Francisco producer.

He prefers to be as independent as possible of outside facilities, and so he handles all his own sound recording and dubbing. Four 17½mm magnetic recorders are rack-mounted in the booth of his projection room.

The narration for this producer's films is recorded before editing so that the editor may use it as a guide. Picture work-print is a 16mm b. & w. reversal print from the Kodachrome Commercial original. No work-print, optical or magnetic, is made from the narration recording, which runs through a Moviola and a synchronizer along with the picture print. Special cutting facilities, which have been provided for magnetic sound here, are a 17½mm splicer, a 16-17½mm synchronizer, and a Moviola with 16mm picture head and sound head adaptable to 17½ magnetic as well as 35mm optical tracks.

Once the picture has been cut and the narration spaced to fit it, sound effects and music tracks are prepared on more 17½mm magnetic film. Sound effects are transferred from "wild" tape recordings made in the field to magnetic film. The music tracks are prepared from disks of licensed background music. As an economy measure, the editor breaks down narration and music tracks of completed pictures into spliceless lengths for the sound engineer, who transfers new sound effects and music to them.

Each reel of a picture usually has four sound tracks to be combined. As there are just three machines to play tracks, besides the one used for record-

(Continued on Page 452)



THE MANY portable magnetic and optical sound recorders now available make it easy to record sound films in 16mm in any location. Prohibitive recording costs are eliminated because only a limited staff is required.



AFTER the sound is recorded, it is the sound editor's job to cut and synchronize it with the picture negative. For this the professional has special equipment plus unlimited experience.



PICTURE obtained by photographing with an ordinary motion picture camera lens with normal field.



COMPRESSED picture obtained by photographing with anamorphic type lens. Image is "squeezed."



SAME SCENE as recorded on film (above, right) and expanded in projection process by an anamorphic lens.

Cinepanoramic—New French Anamorphic Lens

Newest lens for panoramic pictures is similar to CinemaScope; produces 2.50-to-1 image compressed in standard 35mm film frame.

By ARTHUR ROWAN

FRANCE, WHICH GAVE BIRTH to the anamorphic lens that ultimately became CinemaScope, and led still later to development of Vistarama, has produced still another panoramic lens system, which the originators have called "Cinepanoramic." The lens was announced for the first time in a published description which appeared in the French motion picture trade paper, *Le Film Francais*, for July 10, 1953.

Unlike the anamorphic lens developers which preceded the originator of

Cinepanoramic, the latter also developed a special screen and a stereophonic sound system so that Cinepanoramic—in the projection stage—actually is a complete system.

According to Mr. J. P. Maclaure, of the Cinepanoramic organization, the company's "squeeze" lens used in photography is the now familiar anamorphic type, composed of cylindrical elements. The lens permits photographing on standard 35mm film a 2.50-to-1 image area which is compressed within

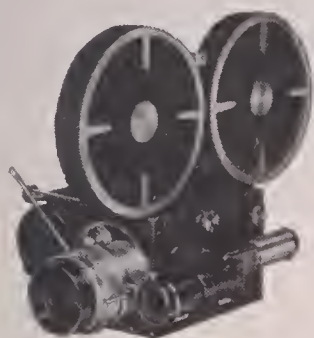
the limits of the conventional 35mm film frame. Maclaure adds that the lens can be adapted without difficulty to all standard motion picture cameras. The company is understood to be using it on both the DeBrie and Cameflex cameras.

"The indispensable complement to the panoramic screen, said Mr. Maclaure, is stereophonic or dimensional sound that allows the audience to follow the movements of the source of

(Continued on Page 442)

If your camera is here...you too can ZOOM from 20mm to 60mm with this variable focal length lens

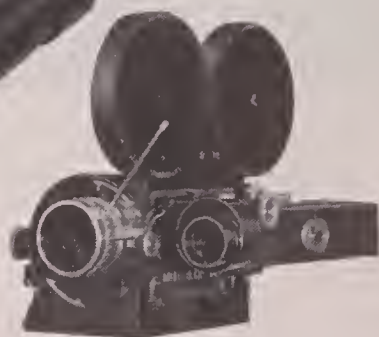
Pan Cinor®



Maurer Camera drops its own finder. Its regular "C" mount turret accepts Pan Cinor without further modification.

In line with its policy, "Bolex brings the best to 16mm Movie Making," the Pan Cinor variable focus lens was introduced to Bolex movie makers a year ago. Because of the demand from both professional and amateur owners of other cameras, we explored the possibilities of fitting the Pan Cinor on cameras other than the Bolex. Here are the answers. Now you, too, can enjoy zooming from wide angle to telephoto at the flick of the lever. Maximum aperture f/2.8. Complete with coupled variable view finder,

\$447.50



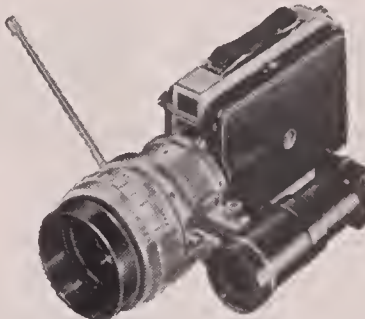
Mitchell Camera. Remove Pan Cinor finder. Use "C" mount adapter. Turret knob diameter is turned down.



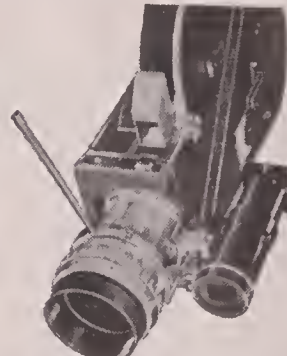
Auricon Cine Voice Camera. Suggest special door without its viewfinder. Purchased from Berndt-Bach for \$42.



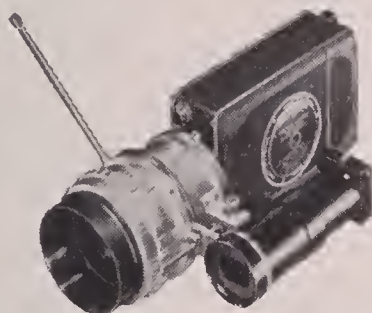
Bell & Howell 70. Suggest special door without its viewfinder. Installed by B&H Service Center for \$35.



Keystone 16mm Magazine or roll cameras in general need no special adaptation for Pan Cinor and finder.



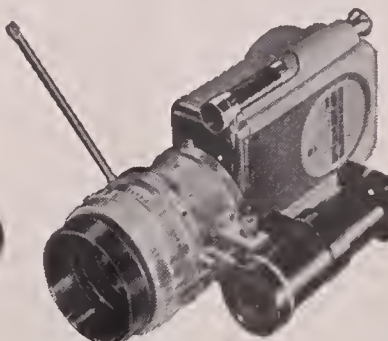
Cine Special I&II both use model I turret drilled & tapped for C mount by Kodak Service, 343 State St. Rochester.



Bell & Howell Auto load, Auto Master and Model 200 mount the Pan Cinor and finder with ease.



Morton Soundmaster drops its finder, and shortens the Pan Cinor lever to clear the film magazine.



Revere Magazine Camera model 16 and model 26 mount the Pan Cinor lens and finder with ease.



Pathe Super 16. Instead of the Pan Cinor Viewfinder, its own reflex finder may be used for viewing.

Bolex® brings the best to 16mm Movie Making

Pan Cinor is manufactured by



Sole Importers & Distributors
Paillard Products, Inc.
100 Sixth Avenue,
New York 13, N. Y.



HEART of Bell & Howell's new 16mm wide-screen system is single anamorphic lens that squeezes wide picture in one frame.



SPECIAL adapter enables attachment to be readily mounted on 16mm camera lens for filming wide-screen movies.



SAME attachment mounted on projector expands the squeezed image, projects it on a wide screen having a 2.50 to 1 format.

Wide Screen For 16mm Movies

New Bell & Howell system provides a 2.50 to 1 picture, uses one lens attachment for both camera and projector.

By JOHN FORBES

MAKERS OF 16MM industrial, educational, training and lecture films—and movie amateurs, too—may now produce their pictures in the panoramic format of CinemaScope, which 20th Century-Fox has developed for feature films. A similar wide-screen system with stereophonic sound for 16mm movies has been developed and already has been demonstrated by Bell & Howell Company, Chicago.

The Bell & Howell system has been patterned after CinemaScope. Demonstration scenes from "The Robe" and other CinemaScope films reduced to 16mm were screened recently before members of the National Audio-Visual Association during the Association's convention in Chicago.

A single anamorphic or "squeeze" lens attachment is used for both photography and projection. The attachment fits the projector lens and is also used on the camera lens with a special adaptor. The attachment may be used

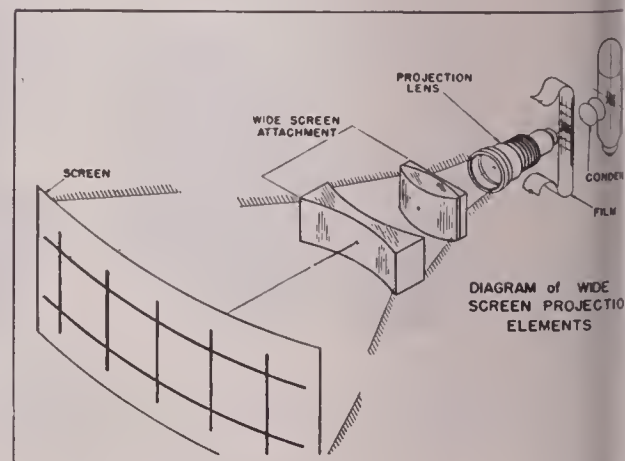
on other 16mm cameras and projectors, besides those of Bell & Howell. In photography, the anamorphic attachment compresses a wide picture area and records it within a single frame of standard 16mm film. In projection, the process is reversed, and the attachment expands the compressed image of the film and spreads it to normal dimension on a curved screen. The projected picture is of normal brilliance, and fills the curved screen which is 2.5 times as wide as it is high. This expanse covers more nearly the normal field of vision of the human eye, say Bell & Howell engineers. The peripheral, or side, as well as the "straight ahead" vision of the viewer is brought into play, and a strong sense of depth and participation in the scene is created without the need to wear special viewing glasses, as for 3-D movies. The depth illusion is further heightened by stereophonic sound, which emanates

from the part of the screen where the action takes place.

At the demonstration, the film was projected with an aspect ratio of 2.50 to 1 on a curved Radiant screen 8 feet high and 20 feet wide. A new type of screen fabric was used to provide uniform brilliance from all viewing angles. The same screen may also be used for screening 3-D movies.

It is not hard to visualize what an impact a picture 20 feet in width could have on student and lecture film audiences accustomed to seeing 16mm mov-

(Continued on Page 458)



IN SCREENING 16mm films made with Bell & Howell wide-screen attachment, projected image passes first through projector lens in compressed form, is spread out as it passes next through the anamorphic attachment and thence to the curved screen having a 2.50 to 1 aspect ratio.

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Making Your Movies Easy To Look At

How to acquire the professional cinematographer's skill for pictorial composition.

By C. C. CHUVAX

MOVIES WHICH GREATLY influence audiences and particularly the scenes which live a long time in one's memory are invariably those in which special care was given to pictorial composition by the ciné photographer. Where pictorial compositions are not easy to look at, are not "easy" on the eyes, the whole film is bound to suffer no matter how interesting the plot or subject.

Perhaps one of the most important reasons a given picture is easy on the eyes is the balance given the scene compositions. Balance, however, is not just a one-way street. A picture or scene should be balanced both vertically and horizontally, otherwise it will appear one-sided or top-heavy, or both.

Horizontal balance becomes the simple matter of placing so called "heavy" objects in the extreme right and left hand edges of a scene or pictorial composition. One such heavy object should equally counterbalance the other, and neither should be so prominent as to "steal" from the point of interest. Such objects most commonly used in horizontal balancing are trees, rocks, animals, etc., and in some cases may be people acting as observers for the point of interest.

Vertical balance takes us back to the golden rule of exterior photography: "1/3 sky and 2/3 picture." This means that the horizon should cut through the upper half of the picture, and preferably about one-third of the way down from the top. This becomes very simple to achieve while looking through the viewfinder. A fifty-fifty vertical balance will let the horizon cut the picture in half and give it a "stiff" appearance. If two-thirds of the picture is sky, it is wide open, and may cause many an observer to ask what was the objective in filming the scene.

Closely related to the horizontal and vertical balance of a picture are "framing devices." The principal difference

between balancing devices and framing devices is that framing devices are almost always in the foreground where sharp focus and full exposure are not always considered essential. Balancing devices, while not always in the foreground, usually share sharpness and exposure with the principal object of interest. The framing medium for a foreground should be well chosen as it usually provides the portals through which the eye must pass on its way toward viewing the chief point of interest.

Such framing mediums may be trees, the low hanging branches of a tree,

shrubs, or an archway of a bridge or tunnel. Regardless of what they may be it should be remembered that by their use you are forming the doorway of a picture—not the picture itself.

Framing foregrounds may offer exposure problems that, more often than not, will conflict with the point of interest. In such a case the best practice is to expose for the point of interest and let the framework follow through. If frameworks are chosen which are darker than the point of interest, slight under-exposure will result, which provides a doorway with a command to enter.

Once the framework has got the eye inside the picture it must be slowly and subtly led to the point of interest. This is done by means of a "sign post" or road marker placed along the way, from the framework to the point of interest. Such guides should appear casual in the picture, as though their being there was quite accidental. In no case should they be so prominent as to suggest that their presence was deliberately planned. If the filmer will remember that the functioning of these guides is to point the way, and that they are not stopping places, mastery of their use will become much less difficult.

A winding country lane is perhaps
(Continued on Page 447)



A PICTURE having but a single object as the subject has little or no eye appeal, and is meaningless pictorially.



ADD TO IT framing elements and it begins to take on depth. There is now a doorway through which the eye may enter.



HORIZONTAL balance is given the picture with the addition of objects placed prominently in the foreground at either side.



ADDING the horizon line plus a "lead" line to the object gives vertical balance and provides a well-rounded composition.



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Here Are Rules For First 16mm 3-D Film Festival

Event will showcase 16mm 3-D amateur and professional motion pictures made with Bolex, Elgeet and Nord Stereo attachments.

By ARTHUR GAVIN

IN LESS THAN 30 days—on October 1st, to be specific—American Cinematographer's first 3-D Film Festival for 16mm stereoscopic motion pictures will get underway. This means that readers who plan to enter their 3-D films in this Festival have but a few weeks to polish up on their editing, do their sound recording (where sound is to be a part of the entry) and get the film into the mail or to the Express office.

The rules which apply in this Festival appear below. The Entry Blank, which appears next to the rules should be clipped from the page, filled out, and mailed as soon as possible. *It should be*

sent to the Festival Chairman in advance of the film entry.

The editor has received a number of letters asking why the festival is being limited to single-strip 3-D films? There are two reasons for this: First—the Festival is primarily for showcasing what the amateur, semi-pro and even the professional can accomplish when using any of the three 16mm single-film systems presently available to the amateur movie maker. These include the Bolex, Elgett, and the Nord. Second—to accept twin-film 3-D entries, many if not all would require use of the projection equipment designed especially for the

respective films. Obviously this would be impractical.

The Committee will have available at the Festival the screening equipment of the three systems named above. In addition, there will be sound equipment for playing back the various types of separate sound recordings which are expected to accompany many entries.

Because of the difficulty experienced in the past with wire recordings, this medium will not be considered by the Committee.

Additional requirements for those who plan to enter films in the Festival

(Continued on Page 442)

ENTRY BLANK

(Clip And Mail In Advance Of Your Entry)

Chairman,
American Cinematographer
3-D FILM FESTIVAL,
1782 North Orange Drive,
Hollywood 28, Calif.

Sir: I plan to enter my film entitled: _____

in your forthcoming 16mm 3-D FILM FESTIVAL.

My film is _____ feet in length, in color _____, black-and-white _____. It has sound: on film (optical) _____; on film (magnetic) _____; on separate tape or film (magnetic) _____; on discs (synchronized) _____.

Brief description of film subject or content _____

I will ship this film to you on or about (date) _____

NAME _____

STREET ADDRESS _____

CITY _____ ZONE _____

STATE _____

ENTRIES ACCEPTED AFTER OCTOBER 1ST, 1953
CLOSING DATE FOR ENTRIES, DECEMBER 1, 1953

RULES

● Festival is open to all makers of amateur, semi-professional and professional 16mm single-film three-dimensional motion pictures, black-and-white or color, sound or silent.

● Only 16mm 3-D films made on a single strip of film and requiring but a single 16mm projector for screening will be acceptable.

● Entries should not exceed 1200 feet in length.

● Each film should have a main and end title, plus descriptive titles where no sound is provided.

● All entries should be completely edited films, i.e.: they should have reasonable continuity (not be merely an assemblage of random shots, although well-photographed novelty series if 3-D trick sequences will be accepted in lieu of a strictly continuity film).

● Films may be either sound or silent. Where the sound is separate from the picture, it must be easily synchronized and played back. Acceptable sound mediums are: optical sound on film; magnetic sound on film; sound on separate but synchronized tape or film; sound on disks. Magnetic wire recordings cannot be accepted.

● All film reels and cans must be securely labeled with the name and address of sender.

● All films must be shipped to the Festival Committee prepaid, and provisions made for their return, either prepaid or collect.

● Entrants residing outside the continental United States must conform with all the requirements necessary for their films to clear U.S. Customs, as well as those necessary to facilitate their return without imposing taxes, duty, and other costs on the Festival Committee. Transportation charges for return of films should be determined in advance, where possible, and the cost in the form of an International Money Order sent along with the entry.

● No films will be considered after midnight, December 31, 1953.



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The newest Bolex thrill is here . . . movies that come alive with 3-D! Make your own . . . here is the kind of film magic that has coast-to-coast audiences spellbound in the large theatres.

Yes, Bolex can now see like your eyes do—through twin lenses integrated with the Bolex H-16 camera . . . and Bolex 3-D filming is as easy as regular 16mm movie making!


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The Bolex H-16 is the camera most wanted by serious movie makers . . . the camera that has won 13 out of 16 of 1953's top filming awards! So join the ranks of this newest and most challenging group of movie makers . . . secure in the knowledge that with Bolex you'll do it best!

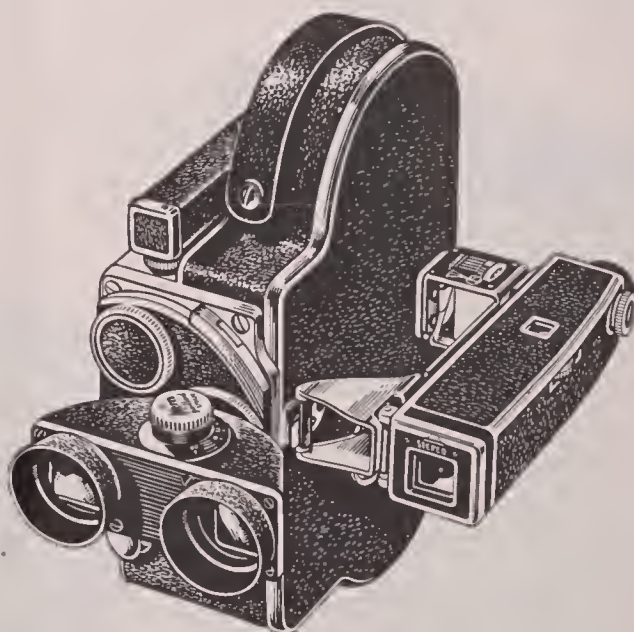
From yesterday's rollicking good times in 2-D movies, to today's flashing action in 3-D; you'll cover the whole range with the Versatile Bolex H-16

The Bolex Stereo system includes taking and projector lenses, screen, and two pairs of Polaroid glasses. \$397.50*
Complete with Bolex H-16 DeLuxe camera. \$715.50*

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*including F. E. T.



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3-D FILM FESTIVAL

(Continued From Page 440)

are that all entries shall be completely-edited films. That is, they should have reasonable continuity (not be merely an assemblage of random shots, although well photographed novelty series of 3-D trick sequences will be accepted in lieu of a strictly continuity film); films should have at least a main and an end title; films may have sound—either recorded on the same film or separately on synchronized magnetic tape or 16mm film. Sound or silent, all films will receive the same consideration. The Festival committee will make no distinction between black-and-white and color entries; both will receive equal consideration.

The committee, which will evaluate entries and select those films to be screened during the three-day festival in Hollywood, will include six leading directors of photography in the Hollywood studios, most of whom have photographed 3-D films that are currently being shown in the nation's theatres.

Now that simple 3-D attachments are available, a broad new field of movie making for 16mm Cine cameras has been opened to the 16mm filmer, both amateur and professional. Indeed, a number of 3-D films in 16mm color already have been turned out for clients by industrial film producers using Bolex 3-D equipment—one that comes to mind being "Packaging — The Third Dimension," produced by Academy Film Productions, Chicago, for Stone Container Corporation, and described in American Cinematographer for August, 1953.

With 3-D feature films becoming more and more popular with the public, 3-D home movies are following this popular trend. American Cinematographer's 3-D Film Festival has as one of its purposes to give impetus to this trend, and to demonstrate to all movie makers what a tremendous impact there is in 16mm movies filmed in 3-D.

To enter your 3-D film in AC's Festival, fill out and mail the entry blank supplied in this issue.

CINEPANORAMIC

(Continued From Page 434)

the sound together with those of the characters or objects which produce it.

"In the Cinepanoramic process, stereophonic sound is produced as follows: Recording is carried out by means of a system of three microphones disposed in the filming field. The recording is done magnetically on Pyral magnetic

*In Studio...
or on Location...*

the new "Balanced" TRIPOD HEAD
is doing a whale of a job every day



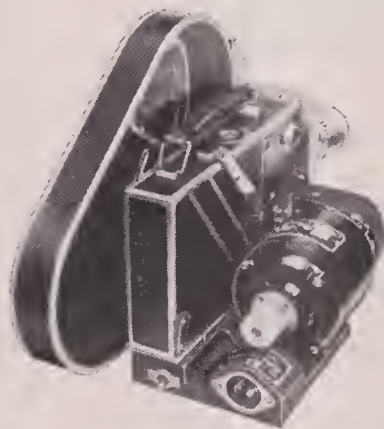
VARIABLE SPEED MOTOR—110 Volt AC/DC—
with Tachometer for EK Cine Special

Motor drive your Cine Special with confidence! Tachometer is mounted in clear view of operator. Calibrated from 16 to 64 frames per second. Definite RED marking for 24 fps. Electrical governor adjusts speeds. Steady operation at all speeds. No adapters needed. Motor coupling attaches to camera and couples to motor. Spring steel drive arm shears if film jam occurs. Easily replaced.

SYNCHRONOUS MOTOR DRIVE—110 Volt AC
—Single phase, 60 Cycle.

Runs in perfect synchronization with either 16mm or 35mm Sound Recorders. Mounting platform permits removal of magazine while camera remains mounted on motor. Spring steel drive fin coupling prevents damage if film jam occurs.

Knurled knob on armature permits rotating for threading. "On-Off" switch in base. Platform base threaded for 1/4" or 3/8" tripod tie-down screw. Rubber covered power cable with plugs included.



HEAD ILLUSTRATED CONTAINS ADJUSTABLE CAMERA TIE-DOWN SCREW
FOR LOCATING CENTER OF GRAVITY. THIS FEATURE IS OPTIONAL.

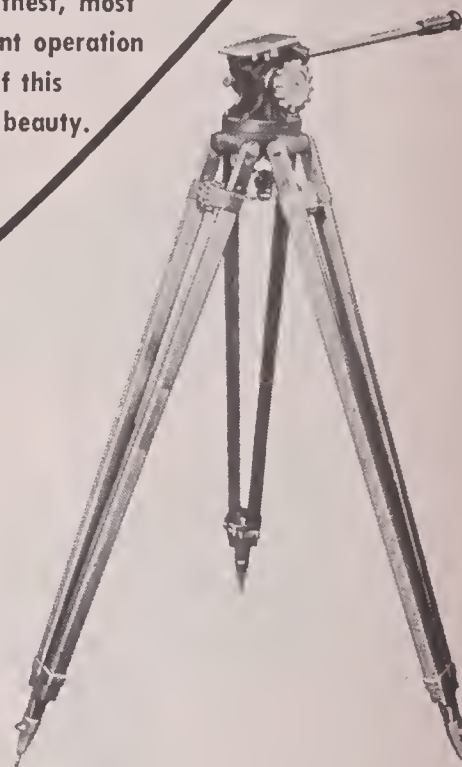


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Handles all 16mm cameras, with or without motor. Also 35mm DeVry, B & H Eyemo with and without motor, and 400' magazines. Tripod base interchangeable with Professional Junior gear drive head. "Baby" tripod base and "Hi-Hat" base available.

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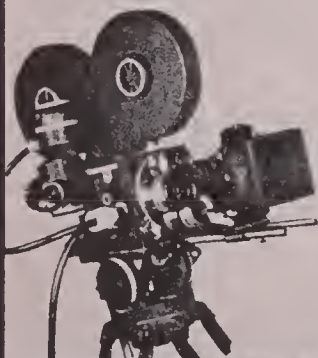
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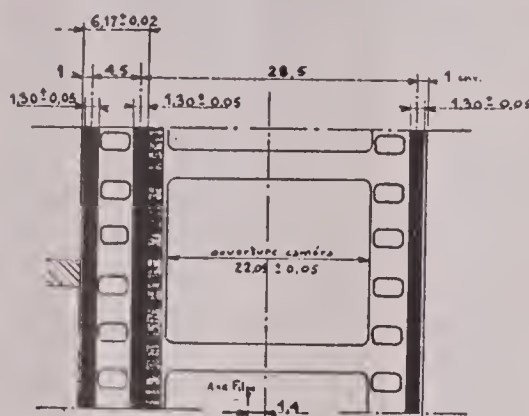
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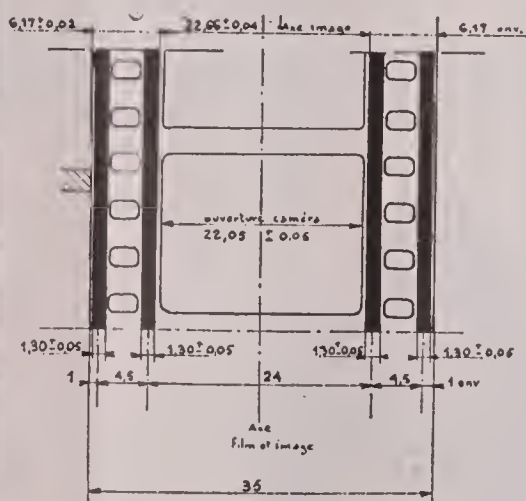
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film, producing three separate tracks corresponding to the three microphones. Where required, the magnetic tracks later are re-recorded to optical tracks. The use of magnetic Pyral tracks on the release prints, however, has the advantage of requiring no modification either in the dimension of the picture area of the film or the sprocket holes of the film as is presently being considered for CinemaScope prints.

"Use of the Pyral magnetic tracks on release prints has been thoroughly tested, and no sound echo from the juxtaposition of the tracks has been detected.



1



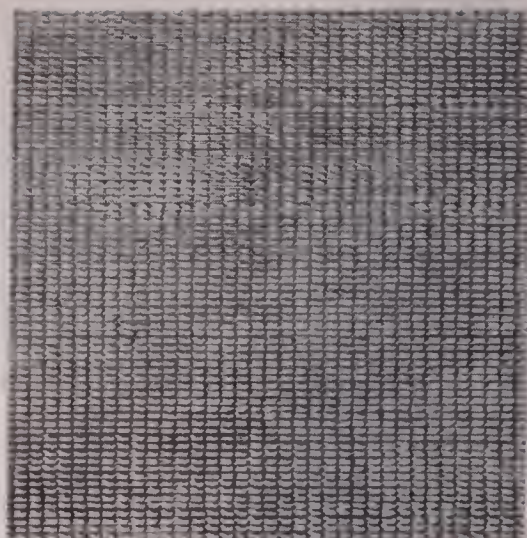
2

HOW FOUR TRACKS are provided on 35mm Cinepanoramic film. Utilizing the French Pyral process, 3 magnetic and one optical tracks are recorded as shown above in Fig. 1; or four all-magnetic tracks as shown in Fig. 2.

"This method also presents the advantage of allowing for the protection of the picture and sound by means of one and the same print, thus eliminating the disadvantage of stereophonic sound reproduction by secondary sound-track film running in sync with the picture.

"In the theatre, the sound for Cinepanoramic films is reproduced by a unit of three groups of speakers placed behind the screen—at right, left, and at center."

Perhaps one of the most interesting



DETAIL of the structure of the French "Panlight" screen that can be dusted and washed with sponge and water. Screen is made of aluminized plastic.

phases of the Cinepanoramic development is the "Panlight" screen, said to have 360% greater brilliancy than normal theatre projection screens. Of a revolutionary design, the screen fabric is composed of an infinity of tiny optical systems joined together. Maclaure describes it as "a series of aluminized tablets made of plastic matter, and rendered transparent to sound by means of multiple perforations that are invisible during projection. For 3-D pictures, the screen has the advantage of possessing a strictly null depolarization factor." Still another feature of the screen is the fact it can be easily dusted or washed with a sponge and water.

The company plans a public demonstration of Cinepanoramic in Paris in October, at which time it will screen demonstration films made in color. Cinepanoramic lenses will become available for sale to producers and exhibitors about the first of November.

At present, Cinepanoramic has set up in its workrooms the calibrating machinery necessary for mass-production of the lens. Its licenses allow for speeding up production about 200%, and 40% in the process of mounting lenses. According to Maclaure, the company expects to deliver 20 lenses during November, 40 in December, and 80 during January, 1954. By that time, should demand warrant, production will be increased still further.

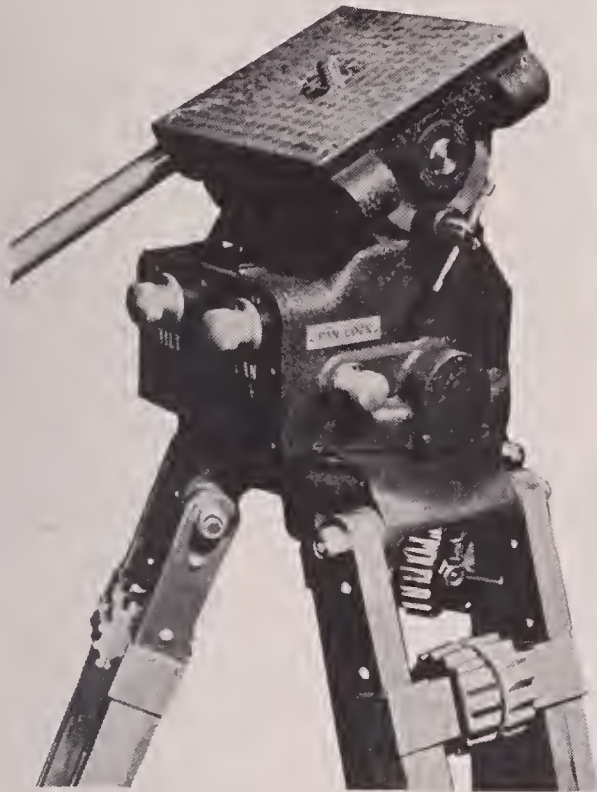
The company is reserving its first output of lenses and screens for French theatres. In the meantime, however, it is expected that technical men of U. S. and other motion picture studios already are evaluating the lens with the object of acquiring it for their respective studios.

It is generally considered that the anamorphic lens system is in public domain and therefore available to all who have the skill and knowhow to put

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FRANK C. ZUCKER
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it together in a way that will produce undistorted pictures. It is expected that the various lenses of this type now beginning to appear on the market under various trade names will ultimately be classified by the industry according to their respective quality, just as standard motion picture camera lenses are presently classified. In the final analysis, the anamorphic lens having the greatest demand will be the one that renders a picture on the screen with a minimum of distortion; that permits working at reasonably small apertures under artificial light; and which possesses reasonable depth of focus. These factors, it would seem, form the real basis for the competition that appears to be developing in the field of panoramic lens manufacture.

Seamless Silver Screen—RCA Victor, division of the Radio Corp. of America, Camden, N. J., announces a new theatre screen featuring a silvered surface especially designed to meet requirements of 3-D and wide-screen systems. New screen is also recommended for 2-D presentations in houses using Suprex or high-intensity carbon arc light sources. The company's standard silver screen is designed for use with either Mazda or carbon arc light sources. Both screens are made from seamless vinyl plastic.

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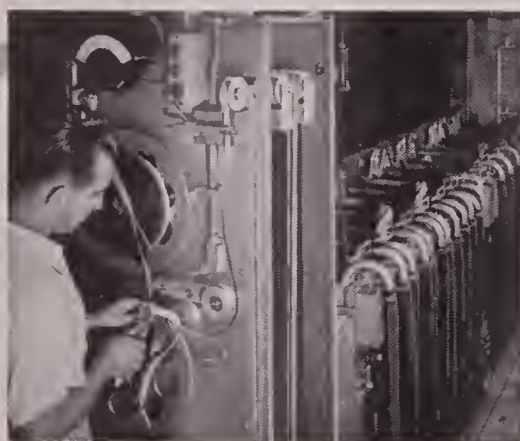
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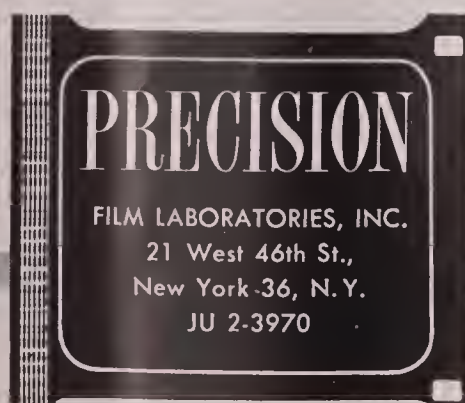
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3-D TRAVEL FILM

(Continued From Page 431)

in the crystal clear water of Devil's Hole rising to the surface to catch food being thrown to them—the latter with the camera pointed straight down toward the water.

To insure the best stereo results in our closeup shots, the rules of 3-D filming were rigidly followed. Thus to keep subjects *behind* the screen, they were filmed at either 24 inches or 40 inches with the appropriate closeup lenses, depending upon the depth and size of the subjects. Because depth in 3-D closeups is somewhat limited subject material must be carefully selected and filmed. For example, when shooting a subject at a distance of 24 inches, any object more than 30 inches from the camera must be removed or obscured, otherwise a disturbing effect will result for the audience.

We met this problem in either one of two ways:

(1) *By placing the object in front of a plain background.* The closeup of a Bohemian rose in the film was filmed this way. My assistant held the rose, which had a fairly long stem, against a cloudless sky. A cloud, no matter how small, should not appear in the background of a closeup of this kind.

(2) *By using a backdrop to eliminate otherwise disturbing backgrounds.* This method was frequently used in the Bermuda film. The backdrops used were panels of thin colored cardboard, 22 by 30 inches in size. One of these having the appropriate color was placed behind the subject to be filmed in closeup. Care was taken to so place the cardboard that it would not pick up shadow of subject, yet be adequately lit.

In stereo closeups, depth is somewhat exaggerated. Therefore shooting at close distances was restricted to those objects which would not suffer from the slight exaggeration. In other instances we minimized the exaggerated effect by shooting from such an angle that depth was diminished.

No little praise is due the wonderful people of Bermuda who graciously opened their homes and gardens to us, and in many other ways aided us in the production of the first 3-D travel film of their land.



MAKE YOUR MOVIES EASY TO LOOK AT

(Continued From Page 438)

the most common type of guide used in picture composition. Here it is a simple matter for the lane to lead the eye from the foreground back into the picture and ultimately to the point of interest. Additionally, a splotch of sunlight may become a prominent sign post, and may be supplemented by a row of trees or bunches of grass to further enhance composition. A stone wall may be just at the right place at the right time. The same may apply to an old rail fence, a city sidewalk or the curb line on a modern street. It is not as though such sign posts are infrequently found; on the contrary, they are almost everywhere one may choose to film his pictures. However, a little practice may be necessary before one learns to recognize them and to use them in photographic composition.

One bit of information that may help one to recognize and use these so called composition sign posts is the fact that the eye, under normal conditions, will start looking at a scene at the lower left-hand corner and will continue on through to the upper right-hand corner. It is at the beginning of this line that

the picture sign post should be placed. Following the line in a ways, the chief point of interest is then placed. We may let the eye stop here, but if not, we should then provide for it to be led out of the picture near the upper right-hand corner of the composition before it sees everything in the picture and starts to roam around.

Unless the filmer has had considerable experience in picture composition it is unwise for him to try all of the ideas here set forth at the same time; a poorly composed picture would be almost certain to result.

A much better plan is to learn how to apply each of the ideas individually.

(Continued on Next Page)

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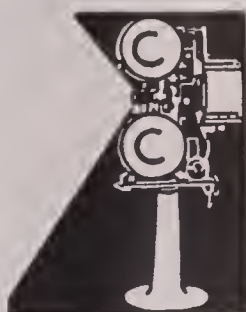
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Making a few test shots of various methods of picture framing would be a better way to gradually build up a skill for picture composition. Try a few shots say, with a doorway framing the subject, and extend the practice to the old garden gate or the grape arbor over the summer house.

With experience in framing one will have also gained experience in picture balance—especially horizontal balance. It is not too difficult a task to maintain the picture frame and at the same time to look into the mid-distance or background and find an object of similar size (so called "heavy" objects) on each side of the picture. Such objects need not be extremely large, but should be easily seen as a balancing factor in the picture on the horizontal plane.

From horizontal balance is but a single step in practice to vertical balance. Here we raise or lower the camera in order to place the point of interest one-third of the way down from the top. In landscape composition, of course, this one-third point is properly the horizon.

The country lane idea previously mentioned is perhaps the most simple of the sign post techniques to employ in the beginning. Of equal simplicity however is the city street curbline or sidewalk. The beginning movie maker



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should not rush matters at this point. Time spent studying compositions in the viewfinder will pay off in more pleasingly composed pictures.

Some idea of the use of compositional elements and their function in composing a scene are demonstrated in the accompanying illustrations. While the subject involved is a table-top figure and the compositional elements are readily set in place by hand, the same technique can be worked out with patience when preparing to film a scene out-of-doors. Instead of moving compositional and framing elements into the scene, one merely moves about with the camera, studying the scene through the finder until the desired composition appears. Additional elements can be added by the filmer—elements such as a limb of a tree, a part of a shrub, large rocks, timbers, etc., where these will enhance the overall picture.

In general it takes practice to develop proficiency in picture composition. It's a good idea to spend at least a couple of minutes composing a scene in the viewfinder before making an exposure. As experience is gained, a well-composed picture becomes a habit as easy to perform as setting the lens stop on the camera.

FILMING 3-D IN KOREA

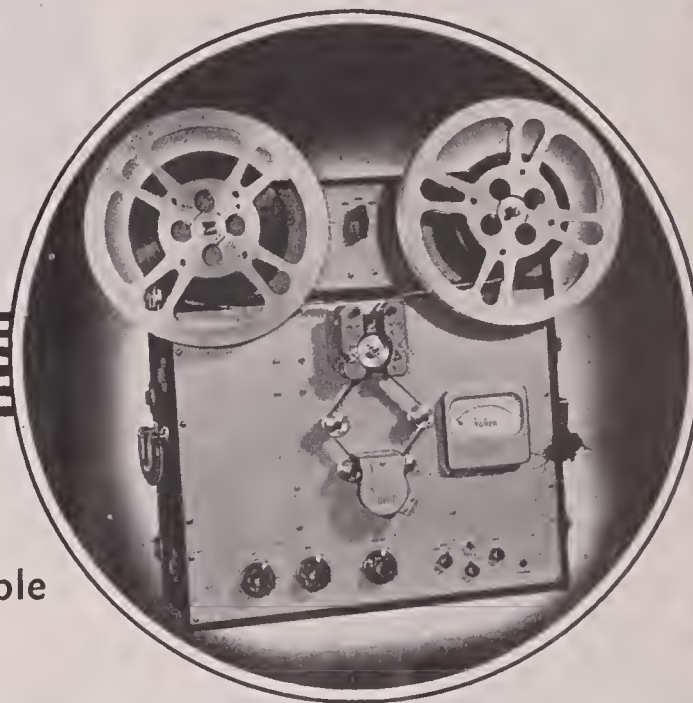
(Continued From Page 427)

lines is heavily chlorinated. We soon found that this was damaging the surface of the 3-D camera mirrors, so we got some alcohol and ether from the medics for cleaning the mirrors, which saved the day until we could get a new supply of mirrors through Japan. Also, for explosions we did not have the specially constructed paraphernalia used in Hollywood; a boulder hurtled through the air by a blast of TNT could be a serious camera hazard. This was partially solved by using old (and often bullet marked) GI helmets to direct part of the blast.

The picture, which has a definite story line, exactly parallels recent activity in Korea. At the time of this writing it appears that the release title will be "Cease Fire," in view of the fact that the truce was signed at Panmunjom yesterday. Yes, the Paramount 3-D crew was there and recorded the whole thing as it happened. If anyone doubts the fact that this picture is recording events as they actually happen, they just don't know much about Korea. This fact is too apparent as we remember that one of the soldiers used in the cast returned to his company after completing his part in the film. He was killed in action only a few days later. Also, the site oc-

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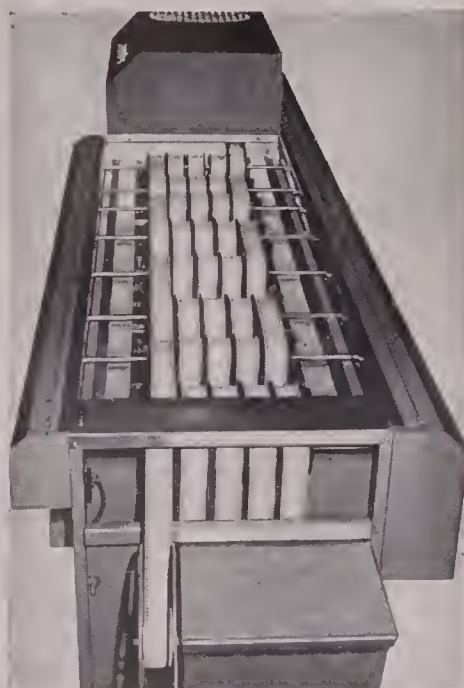
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cupied by "Outpost Paramount" in the 7th Infantry Division area was blasted by enemy artillery not too long ago. Fortunately, there were no casualties or loss of equipment.

This was an interesting project and a real source of inspiration to those of us in the Army who assisted in the making of the picture. There has been no compromise with honesty and authenticity in situation or events, or in location in any of the filming. Soldiers have a distinct tendency to criticize the usual studio product, but in this case the end result should bring loud cheers. There is nothing which can appear quite as real on the screen as reality and we know that reality is what was being recorded in the 3-D camera in Korea. In addition, we found that a Hollywood crew is a tough crowd of rugged individualists who can do as much or more back-breaking work than any front line soldier. This entire project turned into a sort of a mutual admiration society as the front-line soldier saw his own story reproduced for the folks at home, and I know that the picture crew learned more about Korea and combat conditions than have any number of news correspondents. I believe that the final result will be of greatest importance in telling audiences the "truth" of present day Korea and the fighting man. Not only that, but the courage and fortitude shown by the picture crew will be a distinct credit to the Motion Picture Industry.

16MM STEREO CAMERA

(Continued From Page 429)

ting of convergence, interaxial, focus, and lens choice for each 3-D shot. With the Calculator (which he terms the "brains of 3-D") correctly photographed and undistorted 3-D pictures are assured every time.

Briefly, the first step in the filming procedure is to line up camera with the scene or object by using the center-line finder (1), Fig. 1. The cameraman, sighting through this finder, centers the camera on the "target" or main subject. Here use of a prepared target is recommended, such as a large white cardboard with a bold, black cross in the center, or a five- or six-foot pole painted alternately black and white and set vertical in a suitable base. This target is placed at a point in the set where the lenses are to converge — in other words at the point where the stereo frame or forward limit of action is to be established.

The next step is to sight through the

convergence finders (2) on top of the cameras, set the convergence on target or subject, and lock the cameras in position.

By using the Research Council 3-D Calculator as a guide, the cameraman can readily determine the permissible distance that the main subject can be moved ahead of the target point (stereo window) where such a step is desirable, and still not induce distortion or eye-strain on the screen. This is called the "0.5 near point." Use of the calculator will also show what combinations of convergence, interaxial, lens, and focus to employ in order to shoot full-head closeups, head-and-shoulder closeups, a three-quarter figure, full figure, etc., etc.

The zoom-type finder, which is adjustable manually for parallax, is then lined up for the shot — adjusted so that it is centered properly on the target point, same as when lining up the cameras through the center-line finder. In other words, sidelines are established and the finder matched to them.

After setting the lens stop and focus, the camera is ready to photograph the scene.

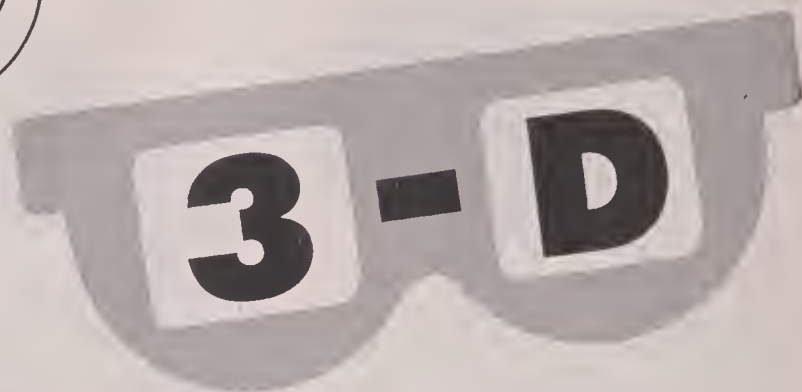
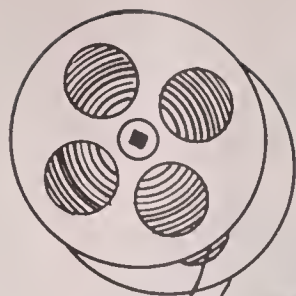
To project the 3-D films made with this camera, Parrish also engineered a twin-projector screening unit. This is pictured in Fig. 4. Two vintage Model-A Eastman 16mm projectors were mechanically interlocked and mounted on a base board. The interlock comprises two universal joints and a sliding shaft linking the film drive mechanisms of the two machines. Reasonable play was allowed in the shaft as a factor in providing a simple method of keeping the machines in sync without the need for a sync motor. Each projector is driven by its original motor. The rheostat control of the left-hand machine is set so this machine runs slightly faster than the right one; this produces a steady drag between the two mechanisms, said Parrish. Once adjusted, the two machines remain synchronized. For horizontal alignment, the elevating screws, which are a part of the projectors, are used. Polaroid filters, which direct the light rays for the left and right eyes for 3-D viewing, are mounted in front of the lenses, as may be seen in Fig. 4.

In all, Parrish spent 31½ months in engineering and constructing the cameras and projectors. Prior to beginning the work, he had spent close to one year in study of stereoscopy and 3-D equipment.

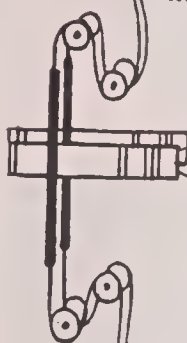
"Had I known that the project was going to be such a tough job," said Parrish, "I would never have started it."

Despite this, he is presently at work assembling a 35mm 3-D camera of his own design. The entire camera will be built by him, and will not include any

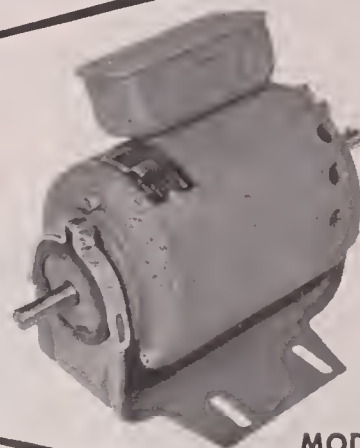
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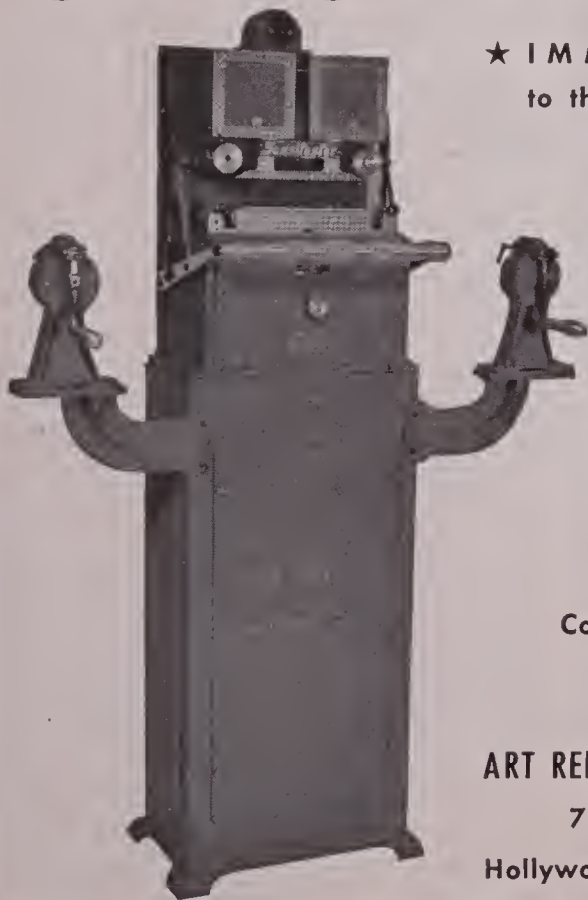
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components of any existing motion picture cameras, Parrish says.

He expects to make the cameras, both the 16mm and 35mm models, available for rental. Stereo movies in 16mm have a big future ahead, Parrish believes, and says his camera is ideally suited to the production of professional films in the 16mm width. Associated with him in this venture is his long-time friend, Dr. Julius A. Paskan, also of Culver City. Together they plan to organize a company under the tradename of Pas-Par Cine Products.

A 15-minute 3-D film in color photographed with Parrish's 16mm stereo camera with the aid of the Research Council's 3-D Calculator, is expected to be ready for demonstration in Hollywood next month.

PREPARING SOUND TRACK

(Continued From Page 433)

ing, all sound effects are combined on an early run. Then the sound effects are combined with the music and narration reels. If there happens to be two music tracks, they are run with an intermediate reel containing a blend of all the effects and narration tracks. The fidelity of the equipment used is so high that no loss of sound quality from re-duplicating can be detected in the final print.

Makers of 16mm films are offered three separate methods of printing sound on release prints. (1) The "normal" way is to contact-print directly onto the film with a sound negative (or positive, for Kodachrome.) (2) When the original sound has been recorded on 35mm optical or any size magnetic film, some producers prefer to have an optical 35mm sound negative or positive made. This standard-gauge track forms the final release print track in an optical sound reduction printer. (3) The newest method, known as "electro-printing," records the sound directly onto each print.

Printing sound tracks by contact is a simple operation for the laboratory and for the film maker ordering his job to be handled that way. However, Kodachrome prints are made from positive sound tracks in a negative position. If the printing positive is recorded as a direct or reversal positive, it will be ready to use in Kodachrome printing. But if a negative is made during the final dubbing session, the recorder should run in reverse in order that the print from that negative will be correctly aligned.

Release tracks printed by reduction are, on the average, somewhat better than those formed by contact. The extra expense is mainly in preparing the

35mm sound positive; for large labs. such as Consolidated in Hollywood, charge about the same for reduction printing. (With this method, the picture area is printed by contact.)

The electro-printing method for 16mm sound films was introduced by Loren L. Ryder ASC, head of Ryder Services, Inc., Hollywood. In this system, each release print has the sound track recorded directly through a sound-on-film recorder that operates synchronously with a film phonograph playing a high fidelity magnetic track. The big advantage claimed for this method is that sound losses due to printing operations are eliminated: each electro-print is an original optical recording.

Surprisingly, electro-printing adds very little to the cost of an ordinary release print. The explanation is that only silent picture printing need be ordered after the raw stock has been recorded by a sound service. But the quality is unmatched. William A. Palmer of San Francisco, who handled kinescoping of the "Standard Hour" television program, chose to electro-print his sound tracks, thus preserving the superb musical quality of the recordings made originally on tape.

Before starting work on a sound film, the independent 16mm film maker should talk over his sound problems with the sound studio and the film laboratory he plans to deal with. Each will suggest procedures that will best match their respective equipment and thus speed the production on its way to the final release print.

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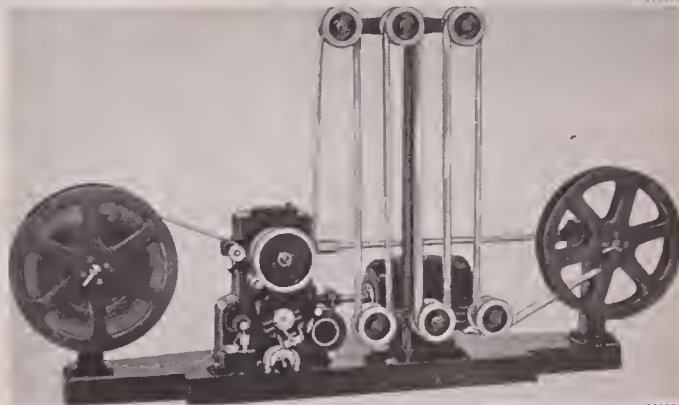
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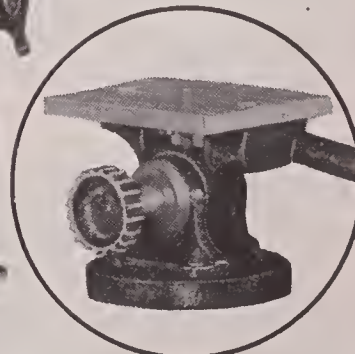


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Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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Allied Artists

• HARRY NEUMANN, "Dragonfly Squadron," (3-D) with John Hodiak, Barbara Britton, Bruce Bennett, Jess Barker, Gerald Mohr, Chuck Connors, and John Lupton. Lesley Selander, director.

Columbia

• FRANK PLANER, "The Caine Mutiny," (Kramer Co., Technicolor) with Humphrey Bogart, Jose Ferrer, Van Johnson, Fred MacMurray, Robert Francis, May Wynn, Tom Tully. Edward Dmytryk, director.

• HENRY FREULICH, "Battle of Rogue River," (Esskay Pictures, Technicolor) with George Montgomery, Martha Hyer, and Richard Denning. William Castle, director.

Metro-Goldwyn-Mayer

• FREDDIE YOUNG, "Knights of the Round Table," (Technicolor—CinemaScope) with Robert Taylor, Ava Gardner, Mel Ferrer, Maureen Swanson, and Stanley Baker. Richard Thorpe, director.

• JOSEPH RUTTENBERG, "Miss Baker's Dozen," (Anso Color) with Greer Garson, Robert Ryan, Barry Sullivan, Richard Haydn, James Arness, Rex Thompson, Tim Considine and David Stollery. Robert Z. Leonard, director.

• PAUL C. VOGEL, "Rose Marie," (Technicolor—CinemaScope) with Ann Blyth, Fernando Lamas, Howard Keel, Marjorie Main, Bert Lahr, and Joan Taylor. Mervyn LeRoy, director.

• GEORGE FOLSEY, "Executive Suite," (Wide-screen) with William Holden, June Allyson, Barbara Stanwyck, Frederic March, Walter Pidgeon, Shelly Winters, Paul Douglas, Louis Calhern. Robert Wise, director.

Paramount

• DANIEL FAPP, "Knock On Wood," (Wide-screen, Technicolor) with Danny Kaye, Mai Zetterling. Producer-directors, Norman Panama and Melvin Frank.

• ERNEST LASZLO, "The Naked Jungle," (Technicolor, Widescreen) with Charlton Heston, Eleanor Parker. Byron Haskin, director.

• LIONEL LINDON, "Casanova's Big Night," (Technicolor-Widescreen) with Bob Hope and Joan Fontaine. Norman Z. McLeod, director.

Republic

• JACK RUSSELL, "Hell's Half Acre," with Wendell Corey, Evelyn Keyes, Marie Windsor, Elsa Lanchester, Jesse White. John H. Auer, producer-director.

R.K.O.-Radio

• HARRY WILD, "The French Line," (Edmund Grainger Prod.; Technicolor) with Jane Russell and Gilbert Roland. Lloyd Bacon, director.

• WILLIAM SNYDER, "Rangers of the North," (3-D-Technicolor) with Victor Mature and Piper Laurie. Louis King, director.

20th Century-Fox

• JOSEPH MACDONALD, "Hell and High Water," (Technicolor, CinemaScope) with Richard Widmark, Bella Darvi, and Victor Francen. Samuel Fuller, director.

• JOSEPH LA SHELLE, "River Of No Return," (Technicolor-CinemaScope) with Marilyn Monroe and Robert Mitchum. Otto Preminger, director.

• LEON SHAMROY, "King of the Khyber Rifles," (Technicolor-CinemaScope) with Tyrone Power and Terry Moore. Henry King, director.

• LUCIEN BALLARD, "Prince Valiant," (Technicolor—CinemaScope) with Robert Wagner, Janet Leigh, Debra Paget, James Mason, Sterling Hayden, Victor McLaglen, Donald Crisp. Henry Hathaway, director.

• MILTON KRASNER, "We Believe In Love," (Technicolor-CinemaScope; filmed in Rome, Italy) with Clifton Webb, Jane Peters, Maggie

McNamara, Dorothy Maguire, and Louis Jourdan. Jean Negulesco, director.

• CHARLES G. CLARKE, "Night People," (Technicolor—CinemaScope; shooting in Berlin, Germany) with Gregory Peck, Rita Gam, Broderick Crawford. Nunnally Johnson, producer-director.

• HAROLD LIPSTEIN, "Three Young Texans," (Panoramic Prods.; Technicolor—Wide-screen) with Mitzi Gaynor, Keefe Brasselle, and Jeff Hunter. Henry Levin, director.

• LEO TOVER, "Man In The Attic," (Panoramic Prods.; Wide-screen) with Jack Palance, Connie Smith, Rhys Williams. Hugo Fregonese, director.

Universal-International

• RUSSELL METTY, "Son Of Cochise," with Rock Hudson and Barbara Rush. Douglas Sirk, director.

• IRVING GLASSBERG, "Ride Clear of Diablo," (Technicolor) with Audie Murphy, Dan Duryea and Susan Cabot. Jess Hibbs, director.

• JOHN SEITZ, "Saskatchewan," (Technicolor—Wide-screen) with Alan Ladd, Shelly Winters, Robert Douglas, and J. Carol Naish. Raoul Walsh, director.

• CARL GUTHRIE, "Yankee Pasha," (Technicolor—Wide-screen) with Jeff Chandler, Rhonda Fleming, Lee J. Cobb. Joseph Pevney, director.

• WILLIAM DANIELS, "The Far Country," (Technicolor—Wide-screen) with James Stewart, Ruth Roman, Corinne Calvet, and Walter Brennan. Anthony Mann, director.

• MAURY GERTSMAN, "Fort Laramie," (Technicolor—Wide-screen) with John Payne, Mari Blanchard, Dan Duryea and Joyce Mackenzie. Jesse Hibbs, director.

Warner Bros.

• EDWARD DUPAR, "The Bounty Hunter," (3-D, WarnerColor) with Randolph Scott and Dolores Dorn. Andre DeToth, director.

• ROBERT BURKS, "Dial M For Murder," (3-D, WarnerColor) with Ray Milland and Grace Kelly. Alfred Hitchcock, director.

• WILFRED CLINE, "Rear Guard," (3-D, WarnerColor) with Guy Madison and Joan Weldon. David Butler, director.

Independent

• CLIFF STINE, "Americano," (Moulin Prods.; Eastman Color—Wide-screen; shooting in Sao Paulo, Brazil) with Glenn Ford, Arthur Kennedy, Sara Montiel, and Cesar Romero. Budd Boetticher, director.

• LESTER WHITE, "Silver Dollar," (Edward Small Prod.; SuperCineColor—Wide-screen) with Jock Mahoney, Peggy Castle, and Adele Jergens. Fred Sears, director.

TELEVISION

(The following directors of photography were active last month in photographing films for television, or were on contract to direct the photography of television films for the producers named.)

• LUCIEN ANDRIOT, "Life of Riley" series of TV comedies for Hal Roach, Hal Roach Studio.

• NORBERT BRODINE, "Crown Theatre" series of 1/2-hr. drama telepix for Bing Crosby

Enterprises at Hal Roach Studios; also "Letters To Loretta" series of 1/2-hr. drama telepix for Lewislro Enterprises, Inc., RKO-Pathe Studios.

• DAN CLARK, "Favorite Story" series of 1/2-hr. dramas for Ziv TV.

• EDWARD COLMAN, "Dragnet" series of half-hour mystery dramas for Mark VII, Ltd., at Walt Disney Studios.

• ROBERT DEGRASSE, "Make Room For Daddy," series of half-hour telepix for D.P.I. and Marterto Prods., Inc., Motion Picture Center.

• GEORGE DISKANT, series of half-hour dramatic shows featuring Chas. Boyer and Dick Powell for Four Star Productions at RKO-Pathe studio.

• HENRY FREULICH, "Tomorrow's Men" series of half-hour dramas for Screen Gems at Columbia Studios.

• KARL FREUND, Desilu Productions, Motion Picture Center.

• FRED GATELY, "Big Town" series of half-hour dramas for Cross-Krasne, Inc., at California Studios.

• JACK GREENHALGH, "This Is The Life" series of half-hour religious films for Family Films at KTTV Studios.

• BENJAMIN H. KLINE, "Fireside Theatre" series of half-hour TV dramas for Frank Wisbar at Eagle Lion Studios.

• CHARLES LAWTON, "Ford Theatre" series of half-hour dramas for Screen Gems, Columbia Studios.

• HAL MOHR, "The Joan Davis Show," series of half-hour comedies for Joan Davis Productions, General Service Studios.

• WILLIAM MELLOR, "Adventures of Ozzie and Harriet" series of half-hour comedy-dramas for Stage 5 Productions, General Service Studio.

• ERNEST MILLER, "Hopalong Cassidy" series of half-hour westerns for William Boyd Productions, at Placeritas Ranch.

• VIRGIL MILLER, "You Bet Your Life" (the Groucho Marx Show) series of half-hour audience-participation programs for Filmcraft Productions, at NBC Studios.

• KENNETH PEACH, "Cowboy G-Men" series of half-hour western telepix for Telemount-Mutual Productions; also "Mr. and Mrs. North" series of half-hour dramas for Federal Telefilm, Inc., at Samuel Goldwyn Studios; also "Ramar of the Jungle" series of half-hour adventure dramas for Arrow Productions at Eagle-Lion Studios.

• ROBERT PITTAOK, "Cavalcade of America" series of half-hour films for Jack Chertok Productions, General Service Studios.

• WALTER STRENCE, "My Little Margie" series of half-hour comedies for Roland Reed Productions, Hal Roach Studios.

• MACK STENGLER, "The Liberace Show" series of half-hour musical films for Snader Telescription Corp., at KLAC Music Hall Theatre.

• HAROLD STINE, "Superman" series of half-hour telepix for Superman, Inc., California Studios.

• PHILLIP TANNURA, "The Burns and Allen Show" series of half-hour comedies for the McCadden Corporation, General Service Studios.

• STUART THOMPSON, "Your Jeweler's Showcase" series of half-hour telepix for Sovereign Productions, Eagle-Lion Studios.

• GILBERT WARRENTON, series of half-hour telepix for Revue Productions.

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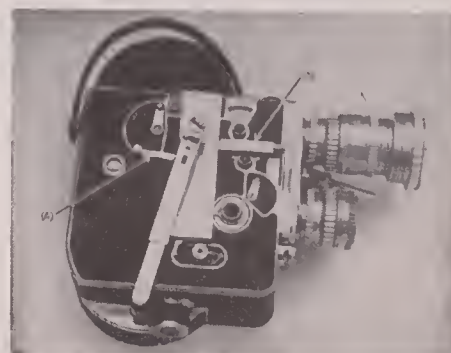
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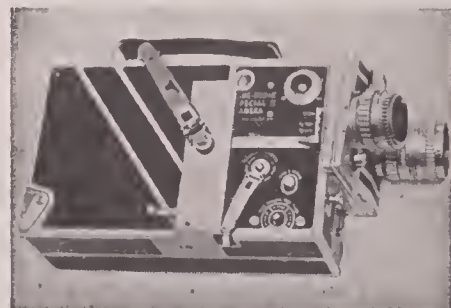
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BULLETIN BOARD

(Continued from Page 414)

Joe Ruttenberg, ASC. is directing the photography of her latest picture at MGM, "Miss Baker's Dozen" — saga of a schoolmarm and twelve boy pupils.

HAROLD LIPSTEIN, ASC., long a regular at MGM, has transferred his photographic bag of tricks to the RKO-Pathe lot. There he is directing the photography of "Three Young Texans" in Technicolor Wide-Screen for Panoramic Productions, a subsidiary of 20th Century Fox.

GLENN R. KERSHNER, ASC., veteran cinematographer now retired, is now a radio "ham." Kershner has been assigned amateur radio station call letters KN6BNZ, and looks forward to nightly conversations with his many friends in the South Seas. He's on the 40 meter waveband.

ARTHUR ARLING, A.S.C., last month shot aerial background scenes for MGM's forthcoming "Panther Squadron 8," saga of the Naval Air Force to be directed by Andrew Marton.

BOB ROBERTS, A.S.C., who returned to Hollywood from South America several months ago, is preparing to return to Brazil, where he will become a director of photography for a leading studio in Sao Paulo.

HUMBERTO CORREL, head of the cinematographic department of one of Brazil's leading motion picture studios is back in Hollywood to acquire additional equipment for his studio. In addition to Spanish and Portuguese language films for the Latin Americas, his company is also producing TV films for South America's growing television networks.

J. BURGI CONTNER, non-resident member of the ASC, who resides in New Canaan, Conn., reports he's busy directing the photography on the East Coast of several TV film shows, including "Hollywood Offbeat," "American Wit and Humor," "The Doctor," and a 15-minute Steve Allen quiz show. All this between shooting commercial and documentary films for Caravel Films, Inc.

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WIDE SCREEN FOR 16MM MOVIES

(Continued From Page 440)

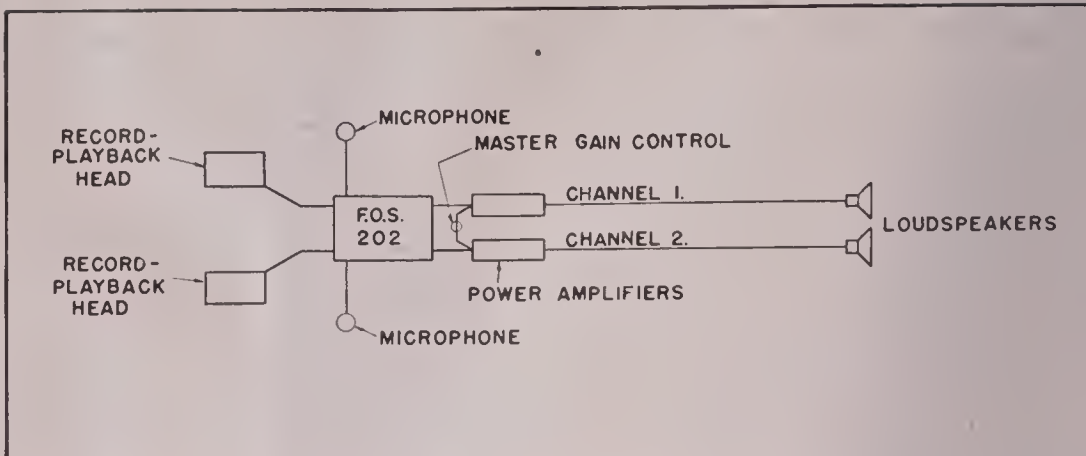


DIAGRAM of proposed stereophonic sound system for Bell & Howell 16mm wide screen movies.

ies on screens with a much narrower dimension. The larger picture with its three-dimensional sound, studies show, commands greater interest of the viewer and leaves him with a more lasting impression of what he sees. Obviously, this new dimension for 16mm films can greatly enhance the message retention factor of training and teaching films. Educational institutions have the advantage in that the large curved screen necessary for showing the panoramic pictures can be of permanent installation. Screen manufacturers such as Radiant are soon to bring out portable screens for wide-format projection in homes, schools, churches, etc.

The Bell & Howell 16mm wide-screen system is expected to be widely used in making sales and industrial films, a number of which are already in production. There is also an immediate need for the system in many foreign movie houses, many of which show 16mm theatrical films only. The new Bell & Howell system thus makes it a certainty that such productions as "The Robe" and other films produced in CinemaScope will reach vast foreign audiences that otherwise might not see such films because of the costly equipment required for theatres to show them in 35mm. Advanced amateurs, domestic and overseas theatres of the armed forces, churches and other institutions will also be sizeable customers for the 16mm system.

To produce stereophonic sound for the system, a modified version of the company's magnetic recording projector (the Filmosound 202) will be offered by Bell & Howell to record the magnetic sound tracks as well as to project the wide-format films. Two different sound tracks, recorded side by side on a single strip of magnetic material permanently bonded to the film edge provide the stereophonic sound.

While stereophonic sound is not absolutely essential to wide-screen productions in 16mm, multi-directional sound, properly engineered and recorded definitely will enhance the scope of such productions. With the Bell & Howell stereophonic sound system, the sound is played back through two separate amplifier-speaker units located at opposite ends of the screen and along the sides of the auditorium.

Bell & Howell engineers emphasize that the new 16mm wide-screen system will not obsolete existing motion picture equipment. While the wide-screen picture has a definite place in today's 16mm industry, standard format 16mm movies will continue popular.

One field in which the new wide-screen system is expected to make large gains is lecture film production and exhibition. The nation's popular lecturers may now bring their pictures to audiences with more drama and impact than ever before—something that is certain to increase audience reception for this already popular class of entertainment.

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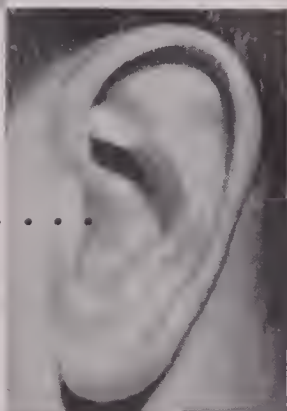
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THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

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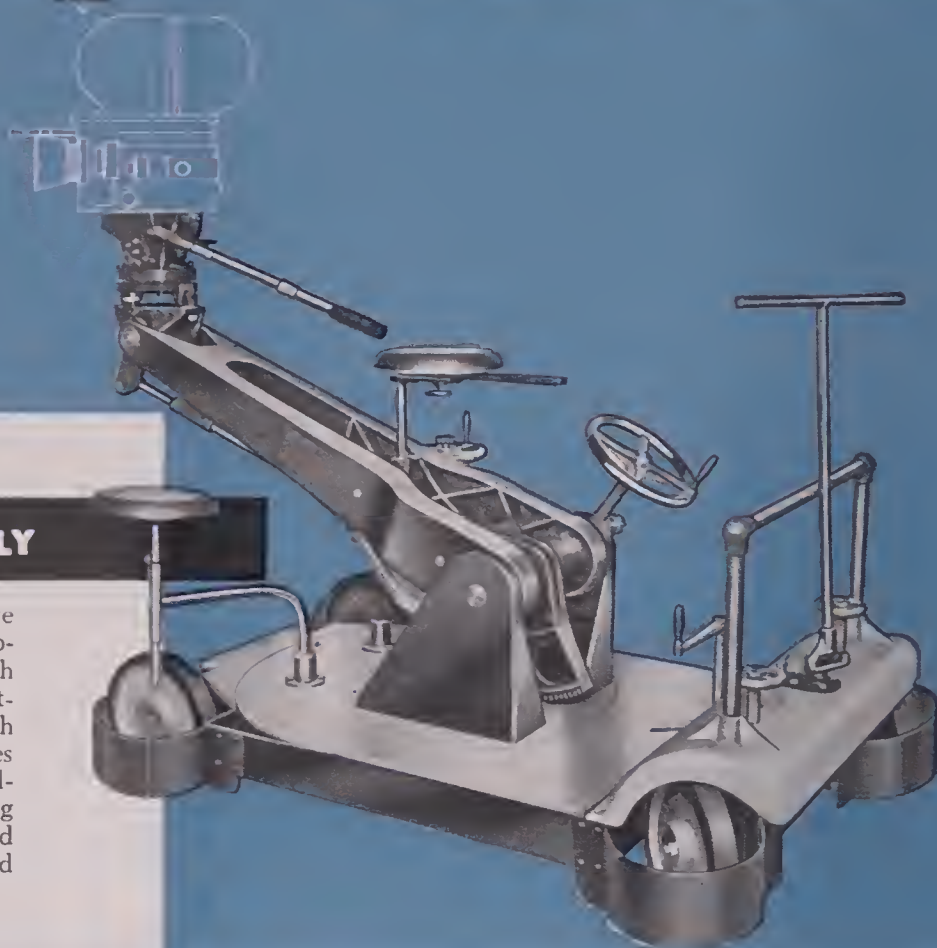
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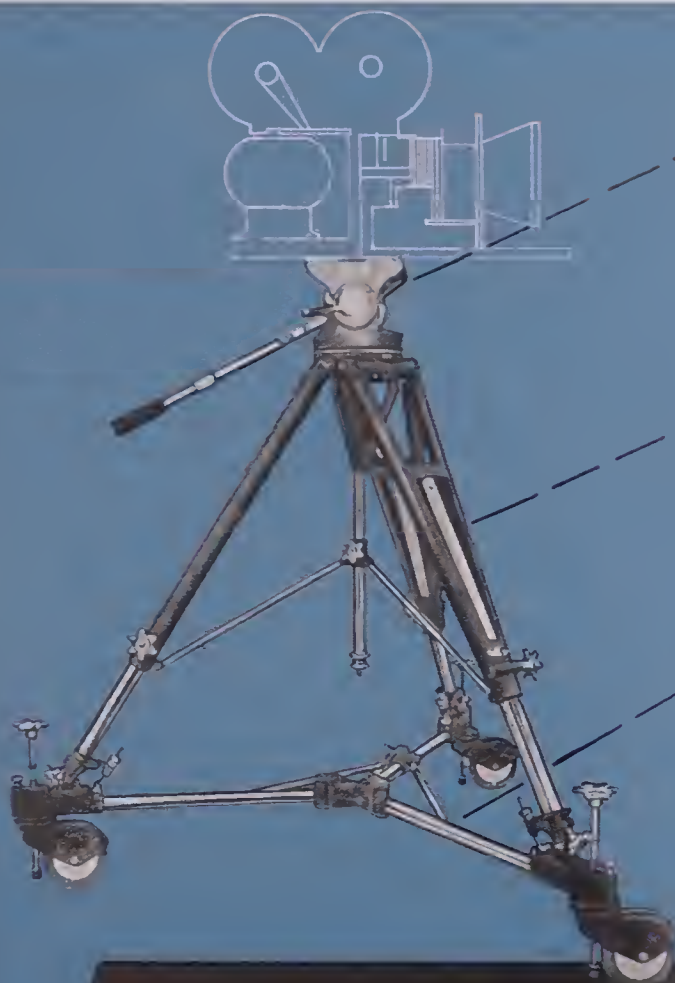
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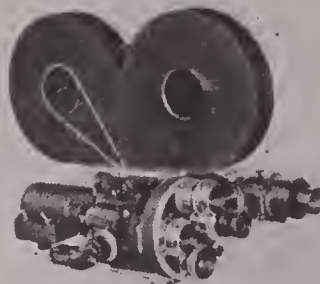
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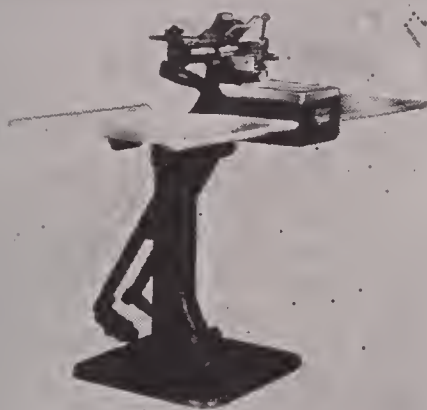
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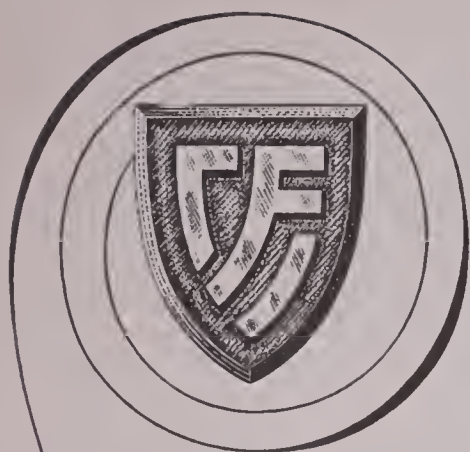
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PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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OCTOBER

1953

NO. 10

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ON THE COVER

UNIVERSITY of Southern California Department of Cinema students in a tense moment filming a closeup for "Let Me See," 16mm color and sound documentary which recently won for the University the Screen Producers Guild Gold Award medallion in the SPG's 1953 Intercollegiate Film Awards. From left to right are Bob Keifer, assistant cameraman; Herbert Skoble, director; and Harry Dorsey, grip, holding scrim. Picture was filmed almost entirely with the University's Mitchell "16" camera. For his achievement in directing the picture, Skoble was presented with duplicate award by the Guild. His story on making the film begins on page 482, this issue.

AMERICAN CINEMATOGRAPHER, established 1920, is published monthly by the A. S. C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif. Entered as second class matter Nov. 18, 1937, at the postoffice at Los Angeles, Calif., under act of March 3, 1879. SUBSCRIPTIONS: United States and Pan-American Union, \$3.00 per year; Canada, \$3.00 per year; Foreign, \$4.00. Single copies, 25 cents; back numbers, 30 cents; foreign single copies, 35 cents; back numbers, 40 cents. Advertising rates on application. Copyright 1953 by A. S. C. Agency, Inc.

IMPORTANT ANNOUNCEMENT

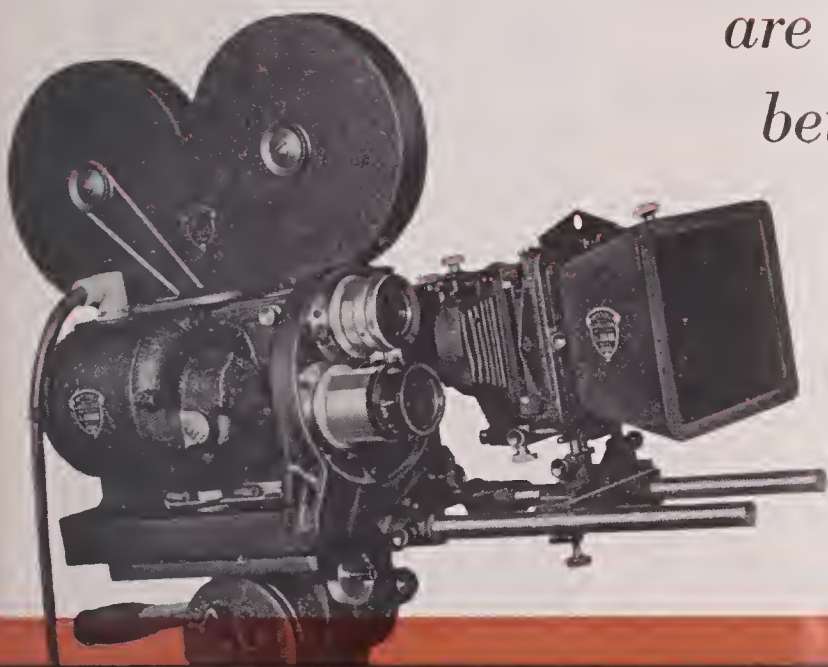
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made anywhere in the world can match
the technical perfection which a Mitchell 16
brings to your film. Each 16mm camera has the same
supreme custom workmanship and Mitchell's
exclusive, positive operation that is today world-famous
... wherever truly professional films are made.



Mitchell Camera CORPORATION

666 West Harvard Street • Glendale 4, Calif. • Cable Address: "MITCAMCO"



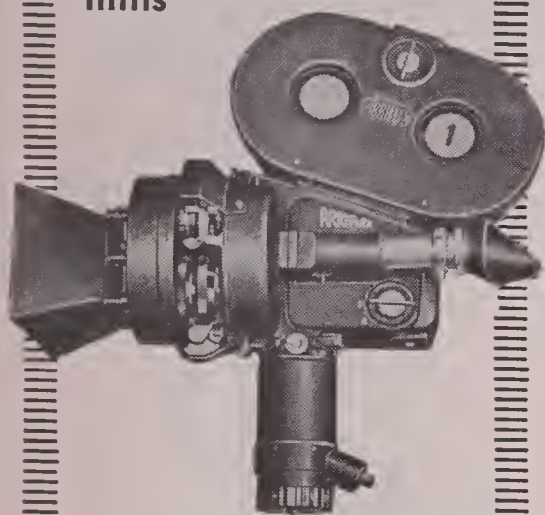
85% of the professional motion pictures shown throughout the world are filmed with a Mitchell

ARRIFLEX

35mm
Model 11

**A TRULY GREAT
CAMERA**

for TV, Newsreel
and commercial
films



For tough and trying assignments, ARRIFLEX 35 is in a class by itself. Reflex focusing through photographing lens while camera is operating—this is just one outstanding ARRIFLEX feature.

Equipped with bright, right-side-up image finder, $6\frac{1}{2} \times$ magnification. Solves all parallax problems. 3 lens turret. Variable speed motor built into handle operates from lightweight battery. Tachometer registering from 0 to 50 frames per second. Compact, lightweight for either tripod or hand-held filming. Takes 200' or 400' magazine. Write for free folder.

FRANK C. ZUCKER
CAMERA EQUIPMENT CO.
1600 BROADWAY NEW YORK CITY

WHAT'S NEW

in equipment, accessories and service

Electric Footage Counter—A new single model electric footage counter for either 16mm or 35mm film is announced by The Camera Mart, Inc., 1845 Broadway, New York 23, N. Y. Housed in attractive metal cabinet finished in gray crackle enamel, new unit contains a precision footage meter driven by a synch motor. It may be easily interlocked with a projector, re-



corder or any other film instrument requiring accurate measurement of footage. Further uses will be found in film editing, script timing, rehearsals, etc., for motion pictures and TV. Complete with neon light current indicator and extension cord, price is \$75.00. Literature is available.

Projection Lenses—A new series of f/1.8 Super-Cinephor projection lenses designed to produce maximum brightness, contrast and sharpness, edge-to-edge, on all types of professional movie screens is announced by Bausch & Lomb Optical Company, Rochester, N. Y. Ac-



cording to B & L, tests have shown that the new lenses, without sacrificing resolution and illumination in the screen's center, will greatly enhance these qualities on regular 2-D screens and also on the new types for CinemaScope,

other wide-screen processes, and 3-D. The new lenses employ five different kinds of optical glass; these, combined with a new design formula, eliminate color absorption and transmit the full color and brightness of image.

The lenses are available in a wide range of focal lengths, which will be expanded steadily in the coming months, the company reports.

35mm—16mm Lab Services—A wide range of film laboratory service, including direct reversal blowup prints from 16mm to 35mm; color blowup negatives, and blowup separation negatives are available from Filmeffects of Hollywood, 1153 No. Highland Ave., Hollywood 38, Calif., who long have specialized in servicing the 16mm color film producer. Company made the 35mm blowups from original 16mm Kodachrome for RKO-Radio Pictures' "The Sea Around Us."

"New Look" For Filmos—A "new look" for two Bell & Howell 8mm spool-load cine cameras (the 134-V single-lens, and the 134-TA tri-lens) is announced by the manufacturer.

Cameras are now available in a new



fawn metallic finish to match their companion piece, the B&H Regent 8mm projector. In addition, the standard $\frac{1}{2}$ -in. f/2.5 lenses now come with click stops for easier, surer setting. Camera prices have not been increased; the 134-V sells for \$89.95, the 134-TA (pictured) sells for \$129.95, including F. E. tax.

Sync Motor Stabilizer—A new power amplifier of greatly increased accuracy and frequency range than any heretofore available has been announced by

(Continued on Page 468)

★ ARRIFLEX 35

MODEL II

The ideal 35mm movie camera for TV Newsreel, Industrial, Travel and Scientific Motion Picture Photography.

FAMOUS ARRIFLEX FEATURES:

- Reflex focusing through taking lens, even when camera is running.
- Bright erect image finder, 6 1/2 x magnification.
- "Follow-focus" without assistant.
- No parallax or other finder problems.
- Full frame focusing and viewing.
- 3-lens turret.
- Quick change geared film magazines (200 and 400 feet). No belts to connect.
- Variable speed motor built into handle.
- Tachometer registering from 0 to 50 frames per second.
- Compact, lightweight.
- Equally adaptable for tripod or handheld filming.
- Easily detachable matte box-filter holder.



EDWIN E. OLSEN
of DUDLEY PICTURES
CORPORATION

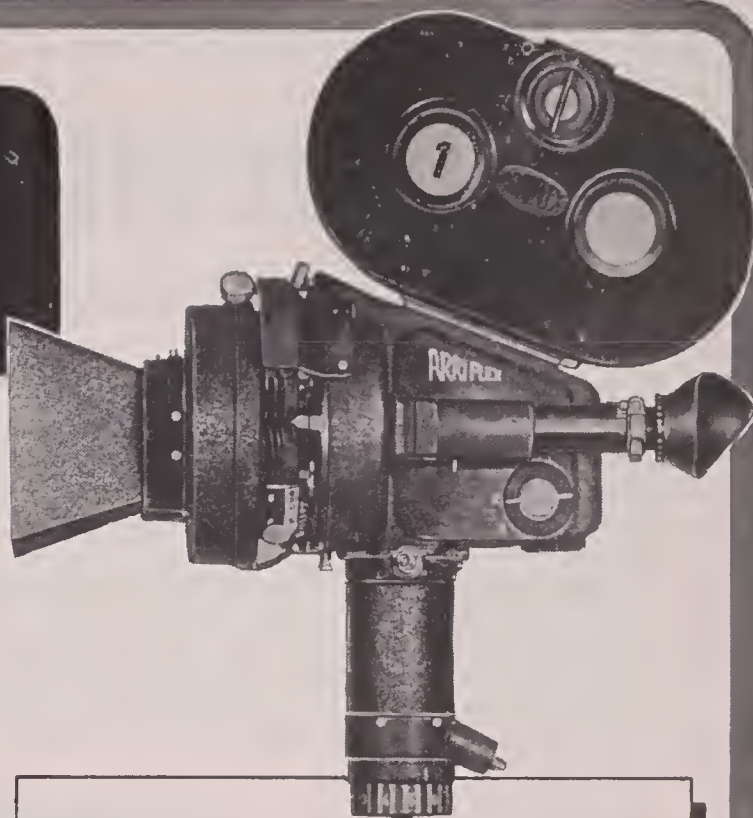
Writes Mr. Olsen:

"... In my many years of experience behind the camera, I have filmed a multitude of subjects all over the world, and wherever I went, my Arriflex went with me.

My most recent project was a sports film, shot in the Hawaiian Islands, the first ever to be photographed in the new ultra-wide dimension ... VISTARAMA. I used my Arriflex exclusively.

If I were asked to give one reason for preferring the Arriflex, I would say portability. The Arriflex is power driven and it permits through-the-lens focusing and viewing. It does everything that in the past would have required cumbersome equipment. Yet, it is light and rugged and can be easily carried into the remotest and most inaccessible locations."

Available at leading dealers.
Write for literature and price list.



COATED LENSES in ARRIFLEX MOUNTS

28mm f/2 Schneider Xenon*	90mm f/3.5 Kilar
50mm f/2 Schneider Xenon*	135mm f/3.8 Kilar
75mm f/2 Schneider Xenon*	150mm f/3.5 Kilar
*With Follow-Focus Grips.	300mm f/5.6 Kilar
	400mm f/5.6 Kilar

ORIGINAL ARRIFLEX ACCESSORIES

LENS EXTENSION TUBE for close-up filming and cinemacrography

HI-HAT for mounting Arriflex 35 on standard tripods

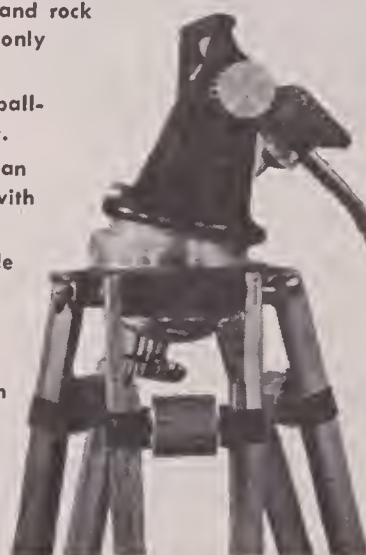
SHOULDER-POD for vibration-free, hand-held filming

BATTERY — 16 Volt, lightweight, non-spill, with carrying case and shoulder strap

BATTERY CHARGER

THE NEW ★ ARRIFLEX 35 TRIPOD

- Sturdy, rugged and rock steady. Weighs only 19 lbs.
- Large universal ball-joint for leveling.
- Velvet smooth pan and tilt action with separate locks.
- Extra long handle for under-arm control.
- Spirit level.
- Can be used with all professional cameras.
- Leather boot available.



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PHOTO SUPPLY CORPORATION

235 FOURTH AVE., NEW YORK 3, N. Y. • GRamercy 5-1120

NOW Synchronous RECORDING

with your present Tape Recorder!

Does your present tape recorder operate at 15 cps? Then add this compact, inexpensive unit and get lip-synchronous sound track recording "on location", using standard 1/4" tape and a minimum of equipment.

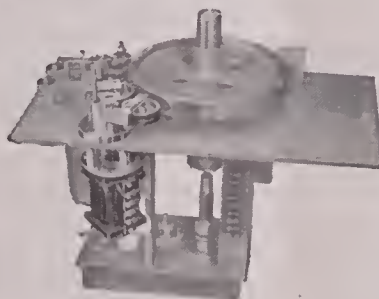
The Fairchild Model 141 generates control track for picture synchronous recording, "mixes" track simultaneously with program material at 30 db down. No interference with immediate playback. Effect substantial savings by using only the good "takes". Sound studios will process your tape and transfer to film, or you can play tape back in perfect synchronism with a Fairchild Pic-Sync Tape Recorder.

Fairchild Model 141
Control Track Generator
is compact, portable—
5 1/4" high, 11 3/4" wide,
11 3/4" deep; weight 10 1/4 lbs.
\$200 f.o.b. Whitestone, N. Y.



World's Finest Professional Tape Recorder—

FAIRCHILD Model 126



Fairchild Model 126
Professional Tape Recorder (left)
with patented Syncroll Drive
and Pic-Sync Attachment (above)
installed within console.

No other Tape Recorder offers all these EXCLUSIVE FEATURES!

- SYNCROLL DRIVE insures exactly synchronous tape speed, gives accurate program timing, on-pitch reproduction.
- PIC-SYNC ATTACHMENT (optional) corrects for tape stretch, shrinkage, provides absolute lip-synchronous timing.
- AUTOMATIC FRAMING CONTROL (with Pic-Sync) brings recorder into frame with projector or other equipment, regardless of difference in starting times.
- OVERSIZE CAPSTAN with 180° tape wrap eliminates slippage.
- HIGHEST SIGNAL-TO-NOISE Ratio of any tape recorder assures minimum distortion in recording and dubbing.

Write for illustrated literature and prices.

FAIRCHILD RECORDING EQUIPMENT

Ninth Ave., Whitestone, N. Y.

Visit us at the Audia Fair, Hotel New Yorker—Oct. 14-17

WHAT'S NEW

(Continued from Page 466)

Fairchild Recording Equipment Corp., Whitestone, N. Y.

Basic function of new unit is to stabilize the speed of a synchronous motor over a broad range of frequencies, by means of audio frequency control, independent of commercial power-



line variations. Experimental and practical applications include magnetic recorders, turntables, timing devices, high speed cameras, servo systems, etc. Unit is designed for continuous operation, and is packaged to mount in standard 19" rack, occupying up to 15 3/4" of rack space.

Complete technical details and other data may be had by writing the company and mentioning *American Cinematographer*.

Arriflex Repair Service—Complete repair service for Arriflex cameras is now offered by Camera Equipment Company, 1600 Broadway, New York City, distributors of the camera.

Film and Slide Viewer—A unique viewer having a large 10 1/2" x 10" screen, and features interchangeable lenses that provide a range of magnification from 7 1/2 to 14, is announced by the D-H Instrument Co., Palo Alto, Calif. The portable table model may be used to view 35mm and 16mm films, or 2" x 2" slides. The large viewing screen makes it especially ideal for viewing motion picture film, and is especially suited to needs of 16mm film makers and editors. More complete details may be had by writing the company at P.O. Box 205, Station A, Palo Alto, and mentioning *American Cinematographer*.

Recording Magazine—*Tape and Film Recording*, a new bi-monthly magazine devoted to all aspects of magnetic recording has been announced by the publishers, Mooney-Rowan Publications, Severna Park, Maryland.

Kern shows what the

Well Dressed

16mm Turret wears



A job always turns out better when you're dressed for the work at hand... and the same goes for cameras, too! Just deck out your turret with a wardrobe of fine Kern lenses and see what a big improvement the exactly right lens can make.

Kern offers you a full range of top-performing lenses, wide-angle to telephoto, all Swiss-made to the highest optical standards. They've every worthwhile feature of all good lenses — click stops, sunshades, hard coating — plus time-saving *Visifocus* (described below) that you'll find in Kern alone.

Dress your camera in the same Kern lenses that have proved so outstandingly successful on famous Bolex cameras. If your camera has a standard "C" mount, Kern lenses are "ready to wear."

Try these Kern Lenses for size...price...performance



	LENGTH	APERTURE	MOUNT	WEIGHT	PRICE
*Yvar	16mm	F:2.8 to F:22	"C"	1¾ oz.	\$ 76.50 Inc. FET
Switar	25mm (1")	F:1.4 to F:22	Bolex only	5 oz.	178.50 Inc. FET
*Switar	25mm (1")	F:1.5 to F:22	Bolex only	5 oz.	122.00 Inc. FET
*Pizar	26mm (1")	F:1.9 to F:22	"C"	5 oz.	94.25 Inc. FET
*Yvar	75mm (3")	F:2.8 to F:22	"C"	5¼ oz.	94.50 No Tax
*Yvar	100mm (4")	F:3.3 to F:22	"C"	6 oz.	106.00 No Tax
*Yvar	150mm (6")	F:4 to F:32	"C"	7½ oz.	145.75 No Tax

The turrets of these 16mm cameras use a "C" mount... and will accept Kern lenses: Auricon Pro, Cine Voice, Super1200... Bell & Howell 7 (above serial no. 54090), 70 D, E, F, G, J, Auto Load, Auto Master... Bolex... Grover GSAP... Keystone... Maurer... Morton Soundmaster... Nord Professional... Pathe Super 16... Revere 16 and 26... Victor Model 3 above serial no. 36885, Model 4 above serial no. 22026, Model 5 above serial no. 52151.

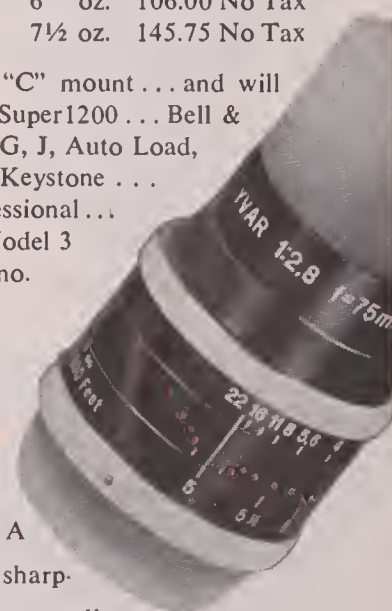
*Only Kern Lenses have *Visifocus*

Visifocus is an entirely new type of Depth-of-Field indicator... a Kern-Paillard exclusive. A series of dots automatically indicate the zone of sharpness at any lens opening. Eliminates the need for complicated depth-of-field charts because the calibrated signals flash up automatically between the diaphragm scale and the focusing scale of the lens mount.

See your Bolex franchised dealer.

Paillard Products, Inc., 100 Sixth Ave., New York 13, N. Y.

Outside U. S. A. write to Paillard, S. A. Ste. Croix, Switzerland



132 Years of Optics...

Kern

...Switzerland

Hollywood

Bulletin Board

Once in a decade
a basic tool
is so improved
as to add
a new dimension
to its use...
the world's
most modern
motion picture
camera



camerette

patents Coutant-Mathot
manufactured by Eclair, Paris

WILLIAM A. CUSHMAN, ASC, sales representative of duPont's Photo Products division, has been transferred to company's Hollywood office to assume post vacated through recent death of Peter Shamray, who was also a member of the ASC. Cushman joined duPont in film coating department, rose rapidly in a series of promotions to his present position. He is widely known among Hollywood cinematographers and executives of the major studio camera departments. He has been an associate member of the American Society of Cinematographers since June, 1951.



WM. A. CUSHMAN

HARRY STRADLING, ASC, only director of photography on contract with Samuel Goldwyn, has had his contract renewed for another year.

Presently conducting cinematographic tests on the new Todd-AO super-wide-screen process, Stradling is slated to direct the photography of "Oklahoma" in Todd-AO, to be produced by Rogers and Hammerstein. Production filming is scheduled to begin in mid-1954.

GEORGE FOLSEY, ASC, after having prepped his 14-year-old son, George, Jr., for the event, missed out on seeing Junior win the Bel Air Junior Golf Championship last month. While Junior was making remarkable drives and putts to win the championship. Senior was across town filming another group of juniors in scenes of a Little League ballgame for MGM's "Executive Suite."

Folsey starts his camera rolling immediately on another MGM picture—"Panther Squadron 8."

JOHN ARNOLD, ASC, MGM's executive director of photography, is readying his new wide-screen camera for general production. Camera, which has film travelling horizontally instead of vertically, provides for making negatives having wide-screen aspect ratios

of various sizes, i.e., with 6, 8 or 10 sprocket holes.

Advantage claimed for new type camera is that the wide area picture secured, when reduced down to standard or conventional 35mm format via optical printing, minimizes if not eliminates entirely any film grain—a particular ideal feature for color.

According to Arnold, camera is not new, but is based on his original camera of same type which he built over 20 years ago.

MEANTIME—two other Hollywood studios are working with cameras of same type. Gil Morgan, head of Morgan's Camera Shop in Hollywood, gave impetus to activity in this direction recently when he dug up an old wide-aperture camera in his warehouse, converted it for lateral film travel, and showed it to a number of studios. Camera is said to be one developed by Fox studio technicians a decade ago, then shelved. Morgan bought two when studio offered them for sale as surplus equipment. One camera reportedly is being used by a major studio on one of its top-budget productions.

THE SIGNAL CORPS' school at Ft. Monmouth, New Jersey, urgently needs instructors in photography. Positions pay from \$3,410 to \$5,060 a year. Complete information may be obtained at most U.S. postoffices, or from U. S. civil Service Commission, Washington 25, D. C.



DIRECTOR of photography William Snyder, ASC, explains use of color meter to visiting Herbert Skoble, college student whose recent 16mm production won him an award plus chance to study cinematography in various major studios.



35 and 16/35 mm



reflex viewing



divergent turret



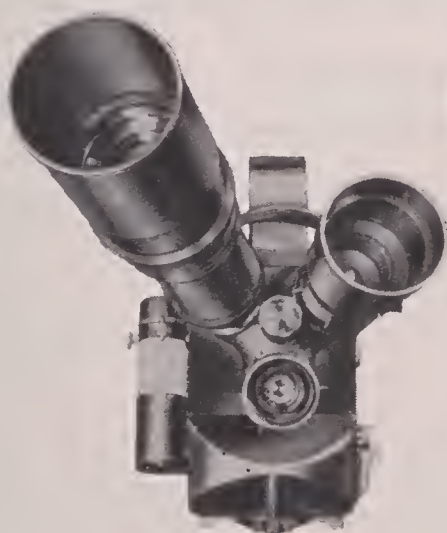
40° to 200° adjustable shutter



lightweight — 14 lbs.



100' to 400' magazine



instantaneous loading



dovetail mounting



camerette

patents Coutant-Mathot
manufactured by Eclair, Paris

for descriptive brochure write U. S. representative

Benjamin Berg Agency, 1366 No. Van Ness Avenue, Hollywood 28, Calif.

in Canada: B.O.P. Co. Ltd., 455 Craig Street West, Montreal, P.Q.



FILMEFFECTS OF HOLLYWOOD



KNOWN THE WORLD OVER

35MM Color Prints from 16MM Originals

- ★ Direct Reversal Blow-Up Prints
- ★ Blow-Up Color Negatives
- ★ Blow-Up Separation Negatives

For the past six years our Color Prints have been acclaimed by leading producers in the United States as well as in other countries.

DO YOU KNOW . . .
that
RKO RADIO PICTURES

Academy Award Winner
"THE SEA AROUND US"
was blown up to a 35mm
direct reversal color print
by
FILMEFFECTS OF HOLLYWOOD
and that
this print was used for the
Academy Award and preview

• CANADA
• MEXICO
• ITALY
• SPAIN
• FRANCE
• ENGLAND

• FINLAND
• JUGOSLAVIA
• BRAZIL
• CHILE
• ARGENTINA
• COLOMBIA

• NICARAGUA
• ECUADOR
• VENEZUELA
• AFRICA
• INDIA
• CHINA

• JAPAN
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• BRITISH MALAYA
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LOOK TO FILMEFFECTS FOR QUALITY LEADERSHIP

- 35MM -
SPECIALIZED
LABORATORY
SERVICES
- 16MM -

FILMEFFECTS of Hollywood

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OPTICAL EFFECTS

COLOR PRINTING MASTERS • TELEVISION FILM SERVICES

16 MM SOUND-ON-FILM CAMERA

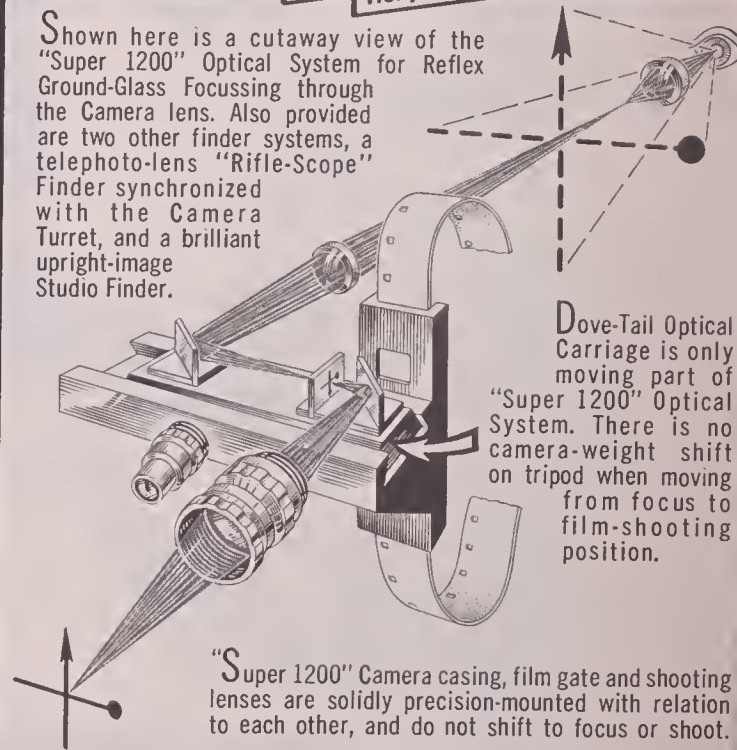
Auricon "Super 1200"

with new Model "CM-74A" features . . .

- ★ During picture exposure, your film runs through the New Auricon "Super 1200" Film-Gate with the light-sensitive film emulsion accurately positioned on jewel-hard Sapphire surfaces, an exclusive Berndt-Bach feature (U.S. Patent No. 2,506,765). This polished Sapphire Film-Gate is guaranteed frictionless and wear-proof for in-focus and scratch-free pictures, regardless of how much film you run through the camera!
- ★ Built-in Electric Camera Heater with automatic Thermostat-Control, provides reliable cold-weather Camera operation.
- ★ Geared Footage & Frame Counter with built-in neon-glow indirect light.
- ★ Two independent Finder systems (in addition to Reflex Ground-Glass Focussing through the Camera lens); a brilliant upright-image Studio Finder, plus a "Rifle-Scope" precision-matched Telephoto Finder.
- ★ Records "rock-steady" picture and High Fidelity Optical Sound-Track on same film at same time, with "whisper-quiet" Camera & Sound Mechanism synchronously driven by precision-machined Nylon gears.
- ★ 400 and 1200 ft. film Magazines available. Up to 33 minutes continuous filming.
- ★ "Super 1200" is self-Blimped for completely quiet studio use.
- ★ Now priced from \$4,652.15 complete for sound-on-film; \$3,755.65 without sound; choice of "C" Mount lenses and Carrying Cases extra.
- ★ Sold with a 30 day money-back Guarantee and One Year Service Guarantee; you must be satisfied. Write today for your free Auricon Catalog...

Auricon
Hollywood

Shown here is a cutaway view of the "Super 1200" Optical System for Reflex Ground-Glass Focussing through the Camera lens. Also provided are two other finder systems, a telephoto-lens "Rifle-Scope" Finder synchronized with the Camera Turret, and a brilliant upright-image Studio Finder.



Dove-Tail Optical Carriage is only moving part of "Super 1200" Optical System. There is no camera-weight shift on tripod when moving from focus to film-shooting position.

"Super 1200" Camera casing, film gate and shooting lenses are solidly precision-mounted with relation to each other, and do not shift to focus or shoot.

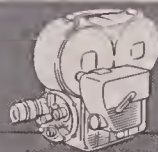
BERNDT-BACH, INC.

7381 Beverly Blvd., Los Angeles 36, Calif.

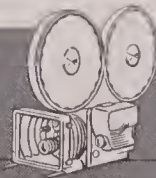
The **Auricon**
 Hollywood *Line*
 SOUND-ON-FILM CAMERAS SINCE 1931



CINE-VOICE



AURICON-PRO



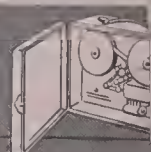
SUPER 1200



TRIPOD



PORTABLE POWER UNIT



SOUND RECORDER

SEEING IS BELIEVING!

1935 BECKY SHARP

INTRODUCES **3-COLOR**
TECHNICOLOR IN ALL
ITS WARMTH AND
BRILLIANCE, BRINGING
NEW HIGH STANDARDS OF
PRODUCTION EXCELLENCE
IN COLOR-BALANCE AND
HIGH-LEVEL STUDIO
LIGHTING.



NATIONAL CARBON ENGINEERS
REPEATEDLY IMPROVE "NATIONAL" STUDIO
CARBONS...INCREASE THEIR POWER AND
EFFICIENCY FOR STILL GREATER COVERAGE, DEPTH
PERSPECTIVE, PENETRATION AND DIMENSIONAL CONTROL.

TODAY...**NATIONAL CARBON** RESEARCH LOOKS FORWARD
TO GREAT, NEW DEVELOPMENTS IN THE FILM INDUSTRY...WIDE
SCREEN...3-D...MULTIPLE CAMERA
TECHNIQUES. **NATIONAL CARBON** IS
READY WITH THE LIGHT FOR ANY JOB.

THE "NATIONAL" CARBON ARC...NOTHING BRIGHTER UNDER THE SUN

The term "National" is a registered trade-mark of Union Carbide and Carbon Corporation

NATIONAL CARBON COMPANY

A Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, New York

District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

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DEDICATED TO BETTER PERFORMANCE



COLLAPSIBLE 3-WHEEL DOLLY

For motion picture and TV cameras. Sturdy cast aluminum. For standard or baby tripods. Additional baby tripod point holders to control spread of tripod legs. Adjustable spring seat. Extra wide rubber wheels. Bronze tie down clamps and other features.

For studio or location. Folds into one compact unit. Can be used with professional or semi-professional tripods.

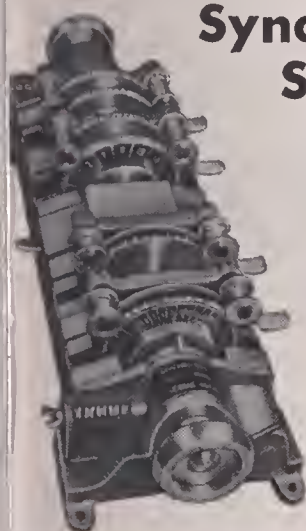
'HYDROLLY'

TV OR
CAMERA DOLLY

The advanced dolly for instant moveability — streamlined, lightweight, exceptionally sturdy. Nothing to get out of order. Many new advantages for easy operation. Hydraulic lift type for fast upward and downward motion of TV and motion picture cameras.



Swivel seat. Adjustable leveling head. Seat for assistant. In-line wheels for track use. Steering wheel, rigid floor locks. Hand pump or combination hand and motor pump. Easily transported in a station wagon. Fits through a 28" door.



Synchro-film-ed Synchronizer

Our Exclusive Distributor
NEUMADE PRODUCTS CORP.

Any combination of 16mm and/or 35mm sprockets assembled to specification. Cast aluminum. Foot linear type, adjustable frame dial. Fast finger roller release. Contact rollers adjusted individually for positive film contact. Sprocket shaft slip lock, foot-age counter, etc.

RENTALS

SALES • REPAIRS • SERVICE

LENS COATING

"T" STOP CALIBRATION

DESIGNING and MANUFACTURING

lens mounts & camera equipt.
for 16mm, 35mm, TV cameras.

BAUSCH & LOMB "BALTAR"
LENSES and others

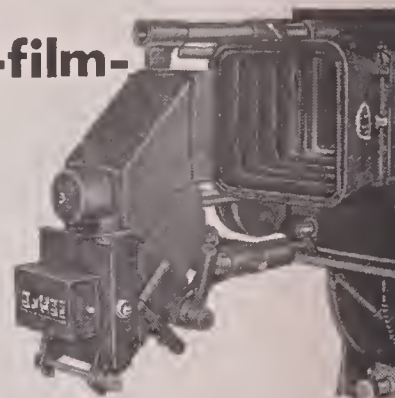
for motion picture, TV cameras.
15mm to 40" focal length.

COMPLETE LINE OF: 16mm, 35mm cameras, dollies, synchronizers, animation stands, cutting room and time lapse equipment.

BELL & HOWELL: Standard, Eyemos, Filmos. MITCHELL: Standard, Hi-speed, BNC, NC, 16mm.

SEND FOR CATALOGUE

Synchro-film- Slate



Pays for itself in production savings on the set. A New Development! Eliminates clap stick synch and slate on set. Mounts on double arm bracket to work with BNC, NC, Standard, 16mm Mitchell and all types of blimps and Geared Head. Interlocks with Sound Recorder.



PORTABLE MICROPHONE BOOM

For Studio or on Location. Lightweight — collapsible — for TV and motion picture production. Sturdy construction. Boom telescopes 7 to 17 ft. Rear handle for directional mike control. A remote control permits 360° rotation of the microphone. Operator can push the boom and operate

microphone swivel simultaneously. Extension rods make it simple to operate microphone rotation from floor. Microphone cable hangs outside of boom, preventing cable from tangling with the rotation mechanism. Ball bearing casters, rigid foot locks, pneumatic drop check for lowering the boom, etc.

VARIABLE- SPEED MOTOR with TACHOMETER

for Cine Special or Maurer Cameras

115 V. Universal Motor — AC-DC
Separate Base for Cine Special.
Variable Speed 8-64 frames.
Adapter for Maurer Camera.

INTERCHANGEABLE MOTORS: 12 volt DC Variable Speed 8-64 frames.
115 Volt AC 60 Cycles, Synchronous Motor, Single Phase.

ANIMATION MOTORS: Cine Special, Maurer, Mitchell, B & H Motors, for Bolex and Filmo Cameras.



for filming

CINEMASCOPE



Scene from "THE ROBE," 20th
Century-Fox CinemaScope Epic

... the world's finest lens

BALTAR

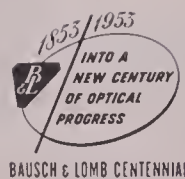


Bausch & Lomb
BALTAR
Cinemotography Lenses



Bausch & Lomb
Anamorphic Adapter
for filming
CinemaScope

It's only natural that 20th Century-Fox looked to Bausch & Lomb for the optical know-how to achieve "the most significant movie development since sound." 20th Century-Fox and other studios use B&L Baltar Lenses with B&L anamorphic adapter in filming CinemaScope productions . . . for breathtaking brilliance and detail . . . for superb correction and definition . . . for today's finest image quality. Because today, just as when it pioneered America's first ciné lenses, Bausch & Lomb sets the industry's standard . . . in CinemaScope, 2-D, expanded 2-D, and 3-D. For your finest work, order Baltar Lenses from your professional camera manufacturer.



BAUSCH & LOMB

OPTICAL COMPANY



ROCHESTER 2, N. Y.

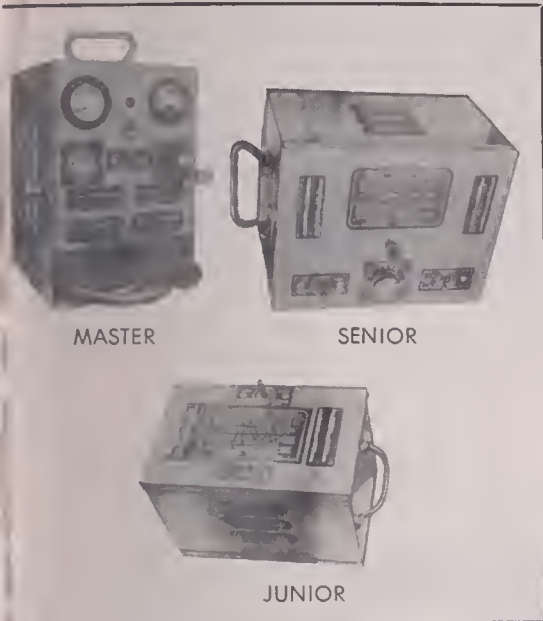
F&B

NEW AND USED EQUIPMENT

FOR MOTION PICTURE & TV FILM PRODUCTION

F&B

Colortran Converters




High powered studio illumination from ordinary house current.

OPERATION: The Colortran is an electrical device which increases the efficiency of ordinary 110-115 volt bulbs 180%. The PAR 38 150w. bulb, which is recommended here, will give MORE photographic light than a #4 photoflood or TWICE the light of a 500-750 w. spotlight.

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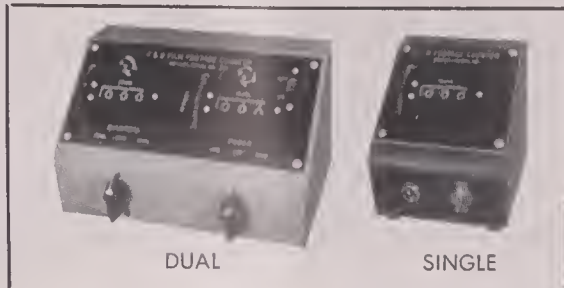
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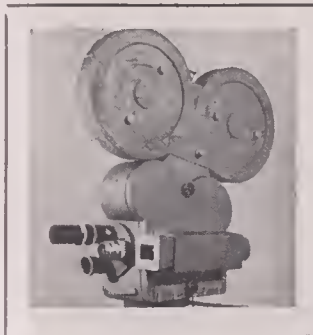
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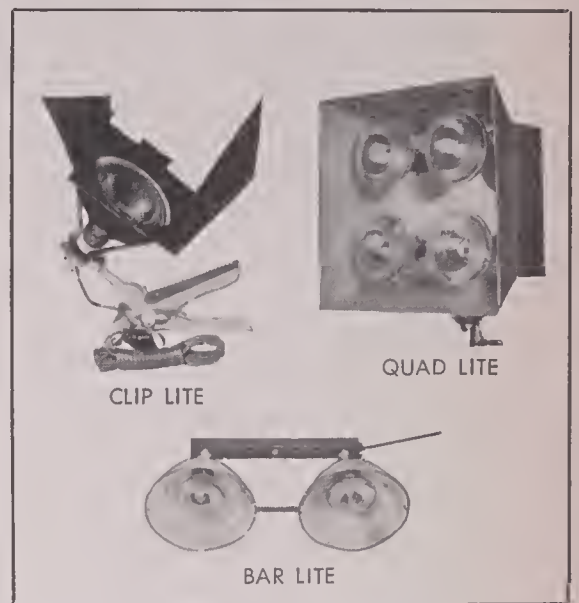
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FIG. 1.—“Penthouse” stereophonic sound reproducers now being marketed by Kinevox (left), Magnasync (center) and Westrex (right).

Units are mounted on standard theatre projectors, between upper film magazine and regular head of projector, as shown above.

“Penthouse” 4-track Sound Reproducers

Auxiliary sound heads solve problem of reproducing 4-channel magnetic sound from composite CinemaScope prints.

By RALPH LAWTON

THE FINAL STEP in the fabrication of Twentieth Century-Fox CinemaScope for the screen was the development of a successful method of putting the system's four sound tracks on the picture film, thereby eliminating need for a separate film for the sound. Actually, two steps were involved: 1) working out a suitable method for putting the magnetic sound tracks on the picture film, and 2), developing equipment for reproducing the four tracks by standard 35mm theatre projectors.

The four-track system was developed by Earl I. Sponable, director of research for TCF studios. The new method, Sponable says, means a considerable saving in the inspection, processing and shipping of CinemaScope films, in addition to lowering projection booth costs, and eliminating millions of feet of film stock which otherwise would be required for separate sound tracks.

To gain the necessary space on 35mm film for the additional tracks, TCF engineers narrowed the width of the sprocket holes in 35mm film from .110 to .078 of an inch, and at the same time also whittled down the size of the sprocket teeth to corresponding dimensions. (See Fig. 2.) Making this step possible was the use of acetate film, which now replaces the old nitrate film for CinemaScope prints. Nitrate film shrank in laboratory processing; the new acetate film is stable.

In all, many months of engineering work went into this phase of the system's development. Both Eastman Kodak Company and Technicolor Corp. had to provide special film stock; new gears for projectors and cameras had to be made and installed; and many changes had to be worked out in laboratory practice.

The second step had as its aim to make it as easy as possible for the average theatre owner to convert his equipment to reproduce the sound from the four-track CinemaScope prints. For this, TCF engineers conceived an auxiliary

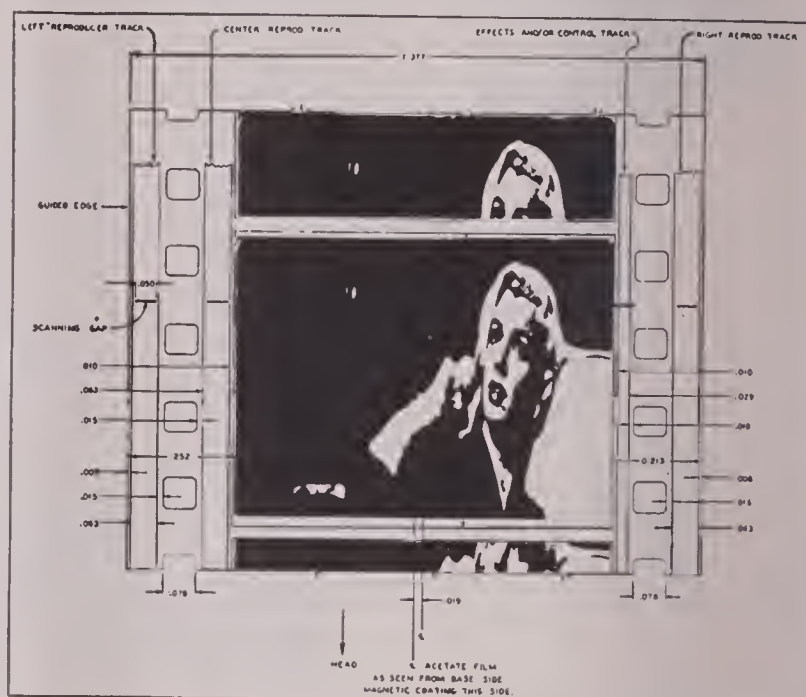


FIG. 2—How the four magnetic tracks for stereophonic sound are arranged on CinemaScope film. Narrowed sprocket holes make possible the additional tracks without reducing picture area.

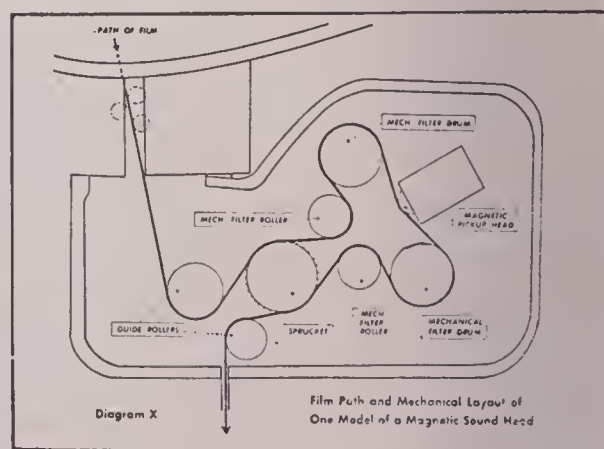


FIG. 3—Film path and mechanical layout of one model of “penthouse” magnetic sound head.

sound head which they termed a “penthouse” and installed the prototype between the upper film magazine and the regular head of a standard 35mm projector. Leading equipment manufacturers were asked to manufacture the “penthouse” sound head for exhibitors. Today, such firms as

(Continued on Page 502)

Shooting A Royal Air Force Training Film

Some of the problems encountered in getting authenticity in a film for instructing pilots in emergency procedure.

By J. R. F. STEWART
Stewart Films, England

TO POINT UP THE IMPORTANCE of knowing exactly what to do in an emergency and to explain to Royal Air Force pilots the important organization that exists on the ground to help them in time of need, the British Air Ministry recently commissioned Stewart Films to produce a 2-reel training film—"The V.H.F. D/F Emergency Service in the United Kingdom."

In many ways, this was an ideal film subject for us. Unlike so many training films, which are necessarily crammed full of detailed instruction, the only message to be taught by this film was "Know your emergency procedure!" As the film's audiences were to be pilots only, a knowledge of normal flying procedure could be assumed.

Most fliers are optimists—maybe they have to be—and faster-than-sound jet pilots of Royal Air Force are no exception. But optimism has its dangers. Many pilots hearing of a "prang" (accident to you readers) invariably feel "It can't happen to me!" And even the most experienced pilots sometimes fail to keep up to date with their correct emergency procedure. The average jet craft can fly for about an hour without re-fueling, yet pilots often return to base with only a scant 15 or 20 minutes' fuel left in the tanks. In such emergencies if anything should go wrong, or if the pilot is



FILMING aerial scenes through the open door of a Lancaster bomber. Pushbutton on front of the Newman-Sinclair camera operated signal light in pilot's compartment to relay cues to him for action.

not sure of his exact position, minutes become precious, indeed.

So we began our film at this point—with a pilot in trouble. The film opens with shots of an aircraft in flight above dense cloud. It soon becomes obvious to the experienced audience that the pilot is having difficulty, and such an audience can be expected to follow closely all that the troubled pilot does in attempt to save his craft. When he fails and the aircraft

(Continued on Page 504)



A CARTOON sequence, showing a humorous aircraft getting into difficulties, was filmed by the Gaumont-British Specialized Film Unit for Stewart Films, and integrated with the live action footage.



CLOSEUPS of the Meteor pilot were filmed on the ground. Because much of the action was filmed in the air in overcast, the closeups were made to match by shooting them on overcast days also, with the camera picking up no sky or clouds in the background.—All photos by Stewart Films, England.



TO EDIT CinemaScope films, it became necessary to devise a special auxiliary Lucite lens for Moviolas, which transforms the squeezed image on CinemaScope films to full panoramic width. Examining the new viewing attachment is TCF Cutting Dept. head Jerry Webb and film editor Barbara McLean.



20TH-FOX STUDIO engineering staff shows several components of new equipment which the studio had to design for CinemaScope photography, projection and sound recording. These include a projection lens, sound boom fork, camera find and camera lens mount.

LEON SHAMROY, ASC, (left) who filmed studio's initial tests with the CinemaScope lens and later photographed "The Robe," discusses the first anamorphic lens imported from France with TCF studio's technical director Earl Sponable.



The Big Ch

When 20th Century-Fox studios decided to abandon conventional film making in favor of CinemaScope productions exclusively, it meant making many changes in equipment, procedure and techniques.

WHEN THEATRE CURTAINS opened last month to reveal CinemaScope and its first vehicle, "The Robe," produced by 20th Century-Fox, millions of Americans were greeted by two of the most momentous and inspiring events to happen in the motion picture industry in more than twenty years.

The release of "The Robe" has come after more than ten years of untiring effort and preparation by the studio, and is almost unanimously considered to be the greatest motion picture of our time. Directly contrasting the many years which have gone into "The Robe" is the story of CinemaScope. It is a short story—less than ten months old—but it has already been written in indelible ink on the history pages of the motion picture industry, thanks to the vision and foresight of Spyros P. Skouras, president of 20th Cen-

Adapted from "CinemaScope Didn't Just Happen," September, 1953, issue of *Action*, 20th Century-Fox employee magazine.



USE OF THE panoramic CinemaScope lens on conventional studio cameras called for re-designing camera sunshades. Technicians Morris Smith and Ray Bedolli examine the improved model.



A TELESCOPIC apparatus producing "an artificial star" is used by the studio to test accuracy of new CinemaScope lenses. Above, camera department head Sol Halprin, ASC, checks new lenses, aided by Campbell Forsyth and Grover Laube.

geover....

By BOB MINTZ

tury-Fox and Darryl F. Zanuck, vice-president of the company in charge of production, both of whom immediately saw the potentials of this new medium.

CinemaScope is a new horizon in motion picture technique. Technically, it is the greatest development since the introduction of sound twenty-five years ago. And it has represented as great a challenge to the technicians and artists at Twentieth as did the introduction of Movietone at the studio in 1927.

The story of Twentieth's conversion—the "big change-over"—to CinemaScope is an unusual interesting one because it reveals how one of the industry's biggest studios suddenly changed its whole course at a time when the industry was in the doldrums, and in face of dire warnings that such a move simply wasn't possible. The story is further important because the unprecedented success of CinemaScope portends similar moves by other studios.

The studio's first manifestation of the revolutionary French panoramic screen process came in January of this year when its Camera Department received one "Dr. Chretien" anamorphic lens. The first probings at the new medium consisted of photographic tests. To screen and evaluate these, a makeshift projection room was built on Stage 6 of the Western Avenue studios. Here a giant, curved screen 63 feet wide, having a new-type reflective coating was installed. It was planned originally to carry on a program

of tests and proving of the anamorphic lens for a period of six months or more. However, after Mr. Zanuck saw the first tests screened, he decided to photograph "The Robe" in this new medium, starting as soon as possible.

The entire CinemaScope program of the studio's camera department was conducted under leadership of Sol Halprin, ASC, head of the department. The first real production tests were made of actual scenes and sets of "The Robe." When the second French anamorphic lens was received by the studio, it opened the way for production of a second picture in CinemaScope. As actual production photography on "The Robe" began, "How To Marry A Millionaire" was being readied to go before the second CinemaScope camera.

The significance of the studio's decision to convert all production to CinemaScope was felt immediately. It affected procedures in almost every department related to production. Involved immediately in changing to the new CinemaScope technique were those employed in cinematography, set lighting, film editing, and sound recording.

Early tests indicated several changes in design of the anamorphic lens would greatly improve photographic results as well as simplify use of the lens in production photography. For one thing, the original French lenses were in square mounts and required unweildy apparatus to hold them before the cameras. These had very crude follow-focus

(Continued on Page 497)

"Let Me See"

one positions on our next picture.

The purpose of this film was to show graphically the day-by-day activities of a prominent nursery school for blind children as they are integrated with prescribed home training, and the eventual results. Students writers had worked on the script for nearly two years before we put it into production. After our script had been approved it was channeled much the same way as an approved script in a major studio; then followed the usual pre-production planning, set designing, and the inevitable budgeting of costs.

Our script provided for dialogue as well as narration plus certain prescribed enactment of activities, all by non-professional actors—actually the blind children, their teachers and the parents—all of whom played themselves in the picture. The "non-professional" factor posed one of our major problems for, as we found out later, amateur actors invariably lose spontaneity after the first take.

Immediately, our big problem, directorially, was getting blind children who have absolutely no conception of what are cameras and motion pictures to repeat their actions and dialogue again and again until satisfactory print-takes

TYPICAL OF the modern cinematographic equipment which the USC students used in filming "Let Me See" is latest Mitchell "16" camera shown here in hands of Richard Harber and Robert Keifer filming a dolly shot on an indoor location.

THE EARLY DAY Angeleno who built the spacious stable at the corner of West 35th Street and Hoover Boulevard, Los Angeles, would be in for quite a surprise today if he could see well equipped student camera crews coming and going throughout the day instead of the elegant horses and riders who graced its portals some forty years ago.

This converted stable is now the collected offices, laboratories, sound stage, and class rooms of the University of Southern California's Department of Cinema.

Believed to be the best equipped year-around university film production workshop in America, the Department of Cinema provides a unique opportunity to students who gather there from all over the world. In close proximity to the motion picture industry in Hollywood, the department is busy training students in all phases of motion picture production and utilization. To augment its regular instructor staff, the Department regularly calls on outstanding workers professionally active in both the theatrical and motion picture fields. Recent guest lecturers include such distinguished cinematographers as Academy Award winners Arthur Miller, ASC, and Floyd Crosby, ASC, and

screen producers Jesse Lasky and Carey Wilson.

Early this year, the Hollywood motion picture industry gave our Department of Cinema probably its greatest incentive when the Screen Producers Guild announced its annual Intercollegiate Film Awards for the best motion pictures conceived and created in the nation's colleges and universities. At the time of this announcement we were completing production of a 16mm documentary film in color and sound on the care and training of blind children entitled "Let Me See." Upon completion the film was entered in the Intercollegiate competition. It subsequently brought us the Guild's first Gold Award—the highest in the Guild's annual presentations.

"Let Me See" was the Department of Cinema's most ambitious project to date, both in scope of subject matter as well as in footage, and marked the first time that many of the students had worked on a school production of any magnitude. We have a unique method of spreading the training over the entire student body so that all receive equal training in all phases of production. Thus the men who held posts as assistants on "Let Me See" assumed number



STARTING a pullaway shot with the Mitchell "16" camera mounted on a Fearless dolly riding in tracks. Nursery school interiors were shot on actual location.

Top Intercollegiate Film Award Winner

could be obtained. This proved as much a strain on the camera and sound crews as it was on the children, and on the parents who played themselves in the film.

All the scenes showing the care and training of the children in their homes were shot on our own sound stage. This involved three different sets comprising the interior of a three-room cottage, and were designed and constructed by the students and faculty members.

These sets were lit with standard studio set lighting equipment such as Seniors, Centuries, 10-K's, etc. We have no generators, portable or otherwise, but utilize utility lines for power. Our sound stage is wired for a maximum of 800 amps.

To photograph the picture, we used the Department's Mitchell "16" camera mounted most of the time on a Fearless dolly. Almost all sequences were shot with sync sound, using Stancil-Hoffman 16mm magnetic film recorders.

Because a great deal of the picture was filmed on actual location in the classrooms, dormitory and dining center of the nursery school, we encountered the problem of excessive heat from the lamps used for illumination. In the low-ceilinged rooms the temperature rose to as much as 120 degrees in a very short time. This made it necessary to limit our takes and to be well prepared for each take before lighting

How University of Southern California students produced the 16mm color and sound film that won the annual Gold Award medallion of the Screen Producers Guild.

By HERBERT SKOBLE and ROGER ANDREW CARAS

up our sets and rolling the camera.

We utilized the Fearless dolly a great deal in making tracking shots in many of the interiors. The dolly was mounted on tracks and our crew members functioned like real professionals in the maneuvering of the dolly and operation of the camera crane.

When shooting scenes involving a great many of the children, we invariably ran into difficulty with one or more of them because of discomfort, temperament, etc. In such instances, we would stop shooting while a member of the crew took the uncooperative youngster out into the patio and told a few "cow-boy and Indian" stories or wrestled with him until the child was back in the mood where he would cooperate.

Throughout production, the mood of the children dictated the rate at which filming could proceed. Some of the men on the crew displayed unbelievable patience, working as a cameraman or a grip one minute, and as a "camp

consuelor" the next—all in an effort to keep the production going smoothly. Without this spirit the picture literally would never have been made. Indeed, in many instances, members of our crew were better able to handle the children than were the parents.

Perhaps one of the most interesting sequences filmed was the one calling for a series of shots showing the various activities of the children out of doors. Because this action had to be filmed almost unobtrusively and because one camera could not possibly have gotten the wide range of shots desired, we gave several members of our camera crew hand-held 16mm cameras with instructions to watch for and record the type of action we needed. Besides the Mitchell "16," we had a Cine Special, a couple of Bell & Howell 70-DL's and three Bolex cameras shooting simultaneously. The usual problem of varying frame lines in the different

(Continued on Page 503)



ECTOR Herbert Skoble (center rear), rehearses players in a scene while camera crew prepares to make a tracking shot. Skoble, incidentally, is presented with duplicate award by Screen Producers Guild.



SKOBLE, extreme left, checks composition of scene at conclusion of the tracking shot rehearsal before ordering the camera to roll. Richard Polister directed the photography.



MGM PROJECTIONIST Purdon C. Young, who developed the Variscope, studio's wide-screen projection lens auxiliary. Variscope mounts on regular projector lens. Picture size on screen can be quickly zoomed from one width to another by means of control knob.

MGM's Variable Wide Screen Projection Lens

With the aid of the Variscope, theatres can screen films of any aspect ratio with the same projection lens.

By FREDERICK FOSTER

Setting focus and screen size is a simple three-step operation: First, the correct matt is inserted in the projector aperture; second, the Variscope is adjusted for the desired aspect ratio or picture width; and third, the projector lens itself is then focused in the usual manner.

The general procedure for the theatre projectionist is to make these adjustments in advance and to run a test screening to determine the proper Variscope settings, lens focus, etc., for the recommended aspect ratios of all films on the program. The necessary cue marks are then made as a guide so that it is unnecessary to make any distracting lens adjustments after projection of a picture begins.

A theatre owner having projectors equipped with Variscope auxiliary lenses, can accept for screening in his house pictures of all aspect ratios, providing he has a screen of suitable height and width.

At a recent demonstration on MGM's experimental sound stage, Young projected scenes from the studio's "Kiss Me Kate" up to 77 feet in width with excellent definition. In previous tests, pictures were projected with the Variscope up to 150 feet in width. Subsequently demonstrations of the lens were given before members of the S.M.P.T.E. in Hollywood. Using a standard 35mm projector lens coupled with the Variscope, Young screened scenes from "Kiss Me Kate" in all aspect ratios. Approval of the lens was unanimous as a result, and plans are now being made to demonstrate the Variscope at the forthcoming S.M.P.T.E. convention in New York City early this month.

(Continued on Page 507)

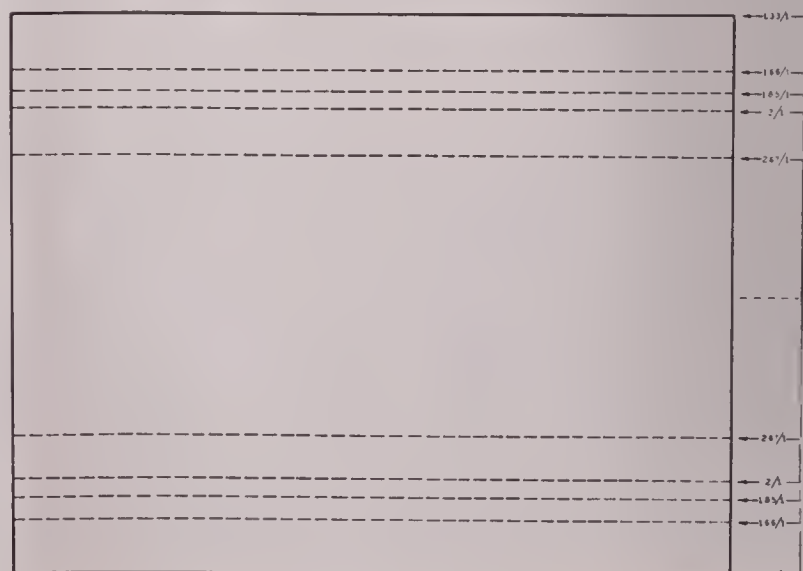


CHART shows wide-screen aspect ratios in common use today. Normally, a separate wide-angle lens is required for each. The Variscope enables one lens to project pictures in all four ratios.

IN ADDITION TO super-wide-screen CinemaScope, Hollywood today is making feature films for wide-screen presentation in four recommended aspect ratios (screen picture sizes): 1.85-to-1, 1.75-to-1, 1.66-to-1, and the conventional 1.37-to-1. Until now, an exhibitor wishing to show films in all wide formats required one or more pairs of wide-angle projection lenses in addition to the pair of standard lenses.

At present, a suitable wide-angle lens must be mounted in each projector in place of the standard lens each time a picture is to be screened in a format other than the standard 1.37-to-1. This operation becomes all the more complex if there are two or more films on the same program requiring different aspect ratio projection.

To meet this problem, Purdon C. Young, special projectionist at Metro-Goldwyn-Mayer studios in Hollywood, has developed a zoom-type auxiliary lens, which makes it possible to screen pictures in all aspect ratios when it is coupled with a standard 35mm projection lens.

The new lens, which has been tradenamed Variscope, will provide a range of aspect ratio projection from 1.37-to-1 to the panoramic 2.66-to-1. The need for separate wide-angle lenses for each aspect ratio is no longer necessary.

In use, variable screen size is achieved by simply changing position of the Variscope front lens element, and inserting a matt of the correct size in the projector aperture. The lens adjustment is achieved by sliding a knob in a slot in the side of the Variscope lens barrel. Framing this slot is an engraved scale plate to aid in quickly setting the Variscope lens at previously determined points. The scale position for any given aspect ratio, for example, can be indicated on the side of the lens barrel with a grease pencil or by noting the figure on the scale plate.

ONE OF THE INEVITABLE conclusions that invariably is reached in any study of 3-D motion pictures today is that the success of 3-D depends as much as anything else on careful if not precise control in projection. Recent investigation has shown that much of the eye discomfort of theatre patrons viewing 3-D films is due not so much, if at all, to the photography or the viewing glasses, but to imperfect projection of the picture.

In most cases, faulty projection of 3-D lies entirely with the lack of synchronization between the twin stereo films. The Polaroid Corporation has demonstrated, with the aid of its new 3-D electronic sync control device, that when the two films are out of sync as much as $\frac{1}{2}$ to $\frac{3}{4}$ of a frame, serious eye discomfort results for the viewer.

Others, besides Polaroid Corporation engineers have discovered this of course, and have sought a simple remedy. The most practical appears to be the recently announced Nord System, developed by Roy Clapp. This process involves putting both right and left eye images on a single film, so that the two are projected absolutely in sync by a single projector. There are other advantages, too.

Because illumination from the same projector lamp house flows through the two images, illumination of both on the screen is always equal.

The Nord equipment has the Polaroid filters for projection built in—all preset and properly angled—to insure the best 3-D projection.

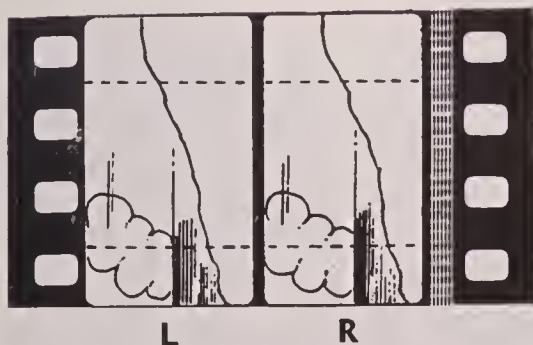
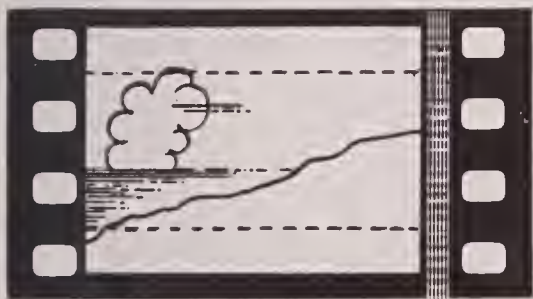


FIG. 2—Diagrams show conventional film frame (top) with wide-screen aspect ratio indicated by dotted lines, and the same frame area (below) with the twin 3-D images side by side as in the Nord System.



FIG 1—Showing simple installation outside projection booth of the new Nord 3-D single-strip projection system. Units are also available for installation inside the booth. Optical system rotates the twin film images 90° and throws them on theatre screen erect.

Simplified Single-film System For 3-D Exhibition

Nord System, which puts twin 3-D images on single strip of 35mm film, insures synchronization and cuts production and exhibition costs.

By ALVIN D. ROE

Print cost is cut in half, because both images are printed on one film; prints are made by standard release print methods.

3-D film programs can be handled the same as regular films without the need for intermissions, and no extra projectionist is required. In short, the Nord System provides 3-D with standard 2-D type operation. No retraining of personnel is required; there is nothing new that the projectionist has to learn. In case of a film break, splicing can be done without fear of throwing the two 3-D images out of sync, as is often the case where 3-D is on two separate films.

Actually, the Nord System gives the film producer substantial control over the presentation of his 3-D films, insofar as the synchronization problem is concerned.

The Nord System consists of 1) a method of optically printing 3-D films to a single 35mm film, with the images head to toe, as shown in Fig. 2, and printed in wide-screen format of 1.75 to 1; and 2) the Nord stereo projection unit, which is an optical device with no moving parts, having no mechanical coupling with the projector, and which is mounted between the projector and the screen. There are two models: one

(Continued on Page 509)

Film Splicing Without Cements Or Adhesives

Butt-weld splicing eliminates need for scraping emulsion and use of cement. Tensile strength of splices ranges between 90% and 95% of film itself.

By LEONARD A. HERZIG

A NEW METHOD of splicing motion picture films has been developed which incorporates the principle of butt-welding film end-to-end, and which eliminates the need of scraping emulsion, cementing and overlap. The splicer which accomplishes this is the Presto-Splicer, illustrated on this page. The principle of the Presto-Splicer is based on a combination of controlled heat and cooling gradient applied under pressure within a given time cycle, and producing a homogenous splice. Properties of the film are not affected because the film is automatically pre-plasticized prior to splicing. The method may be used for all types of safety film.

The Presto-Splicer, shown in Fig. 1, consists of a foundation base and an interchangeable 16mm or 35mm head. The base encloses all the electrical and timing components with the exception of the heater element, which is located in the head assembly. The interchangeable heads can be removed from the base or re-assembled thereto in about 30 seconds. The overall dimensions of the splicer are:

Height	9 in.
Width	11½ in.
Length	17½ in.
Weight	17½ lb.

Maximum power consumption is .100-w.

The splicer operates on 110/120-volt, 50/60 cycle current and may be converted for use with 220-volt power. The castings throughout are aluminum alloy. Finish is hard-baked black crackle.

In the splicing of dissimilar safety base materials, no trouble has been encountered when splicing present types of film, whether to the same or to dissimilar film. However, different time and heat settings of the splicer are necessary when splicing dissimilar materials to each other. These settings can be classified as low, medium and high. The DuPont safety-base film falls into the low category, as it has a low heat requirement. Negative Eastman stock falls within the medium heat requirements, and positive Eastman stock falls into the high heat requirements. When splicing low heat requirement material to a high heat requirement material, the higher of the two settings on the splicer is used.

In the current method of cement splicing, accuracy of the cut with relation to the sprocket hole does not introduce any serious problem. However, where butt-welding is to be achieved, this cut, with relation to the sprocket hole, has to be kept very accurate. To accomplish this, it was necessary when designing the Presto-Splicer to take into account the 0.2% film shrinkage tolerated in the motion picture field. Obviously, this eliminated pins and it became necessary to use only one indexing pin for both cuts, as shown in Fig. 3.

(Continued on Page 494)

FIG. 4—Splicer has many unique features which insure accuracy and permanency of the electric-welded film splice.

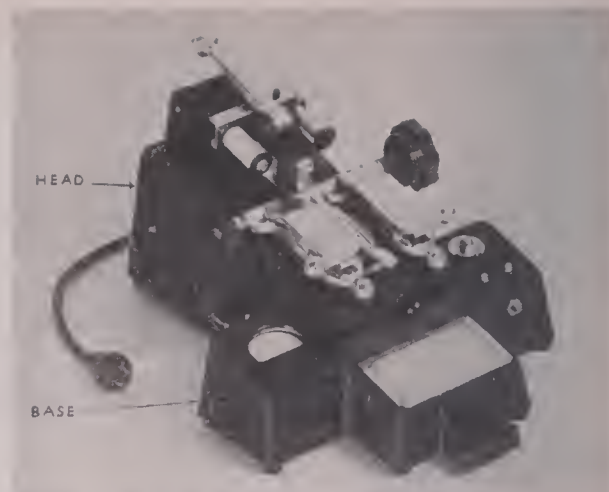


FIG. 1—The Presto-Splicer will splice magnetic film or tape without affecting sound or picture quality.

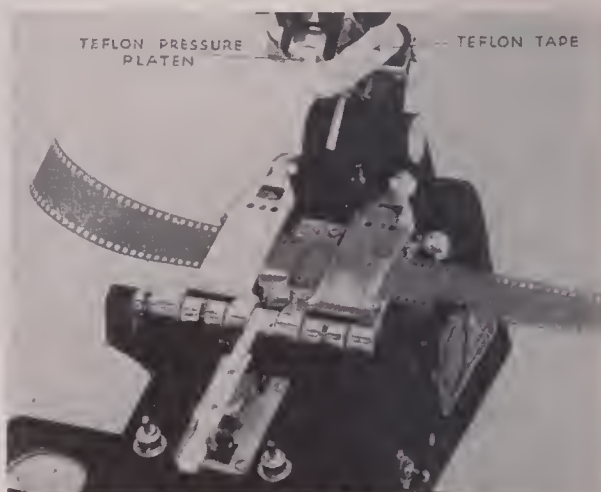


FIG. 2—Special use of Teflon tape on pressure platten insures proper heat treatment to effect butt weld.

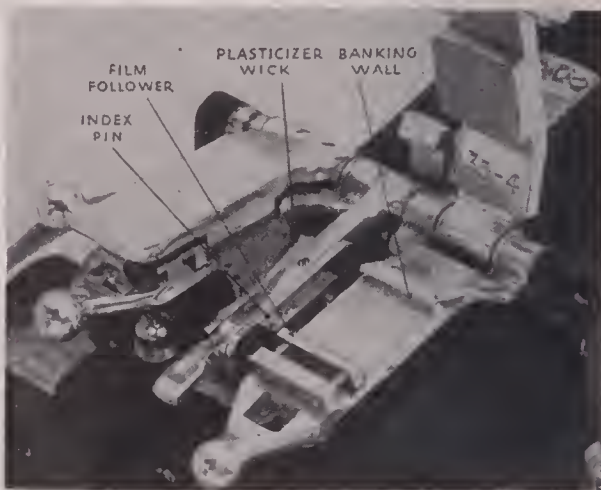
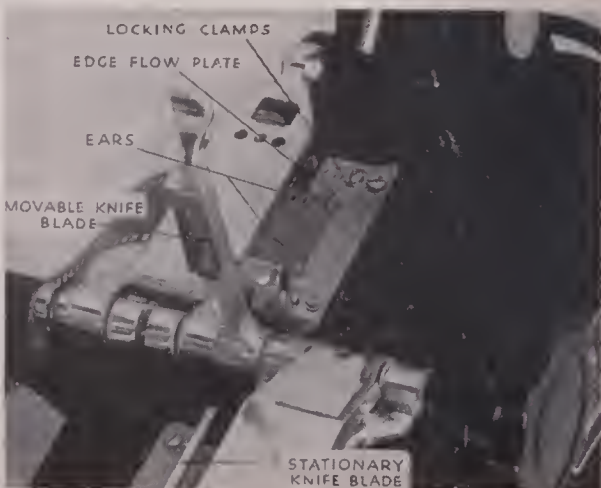


FIG. 3—Automatic plasticizing unit conditions film before it is spliced. Index pins insure register.



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WHEN FILMING SPORTS it's good policy to shoot the entire action in order to achieve smoothness and naturalness. But it isn't necessary to include the entire cycle of the action in the finally edited picture exactly as you filmed it.

THERE AREN'T MANY PEOPLE who can take a motion picture apart and criticise as a separate contribution the editing in the same sense that they can the acting or the camera-work; but when you see a motion picture that unreels smoothly, that puts emphasis in the right places and points up the highlight of the story, whatever it is, you can be sure that it is a good editing job.

Unfortunately too many movie makers in the beginning seem to work on the theory that film editing is simply a matter of cutting out the bad frames that mark each camera start, and splicing consecutive scenes together. Yet the proper handling of a picture in the editing stage is as important to its ultimate success as proper direction, scripting or camera work.

Editing for Balance

The difference between an effective or ineffective cut can be only a few frames. The secret is knowing when to stop — when to cut for greatest effect.

By PHIL TANNURA, A. S. C.

Professional film makers have demonstrated this often enough. All things being equal, poor treatment of a film at the hands of a film editor can turn what by more skillful handling might be a good picture into something very mediocre. On the other hand, a film editor with a good sense of continuity and timing can take what might be a mediocre picture and by his deftness turn out a smooth, interest-sustaining picture.

The same sense of showmanship that is necessary to good direction, writing, scripting or camera work is prerequisite for an equally effective cutting job. And one of the first rules is to learn *when to stop!* When to stop showing the picturesque or expensive establishing "production" shot and cut to some more intimate business; when to cut away from the "intimate business" to a "reaction shot"; when to cut the take on a humorous or dramatic expression or action to get the full benefit of showmanlike punch out of it.

The difference between an effective or an ineffective cut can in many instances be only a few frames. Especially if you are trying to build tempo, every unnecessary frame after a given bit of business or expression has registered is helping to defeat your purpose. This rule of knowing when to stop seems to be one that many moviemakers would do well to learn and profit by. So many of them just don't want to throw away any film at all. They want to include every photo-

(Continued on Page 492)



TWO SCENES above represent technique of cutting from a long to close shot. However, there's one mistake: boat in close shot should have been filmed travelling in same direction as in long



shot—a common mistake in many amateur films. All travel in a sequence of this kind should be in the same direction.—Photos courtesy Kiekhaefer Corp.

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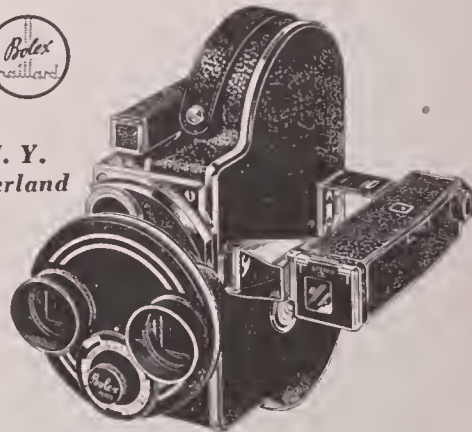


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DOTTED LINES show picture area taken in by the Pan Cinor in a typical zoom shot of a horse race—recording the scene in a range from 20mm focal length down to 60mm.



THE PAN CINOR f/2.8 zoom lens mounted on a Bell & Howell 16mm Auto-load camera. The coupled finder shows the scene area covered at all times. Exposure is constant at all focal lengths.

The Pan Cinor—Variable Zoom Lens For 16mm Cameras

You can zoom in or out, or simply set it for any focal length from 20mm to 60mm and see exactly what you're filming with the new Pan Cinor lens.

By ARTHUR ROWAN

ONE OF THE MOST interesting lenses recently made available to 16mm cameraists is the Pan Cinor zoom lens, manufactured by SOM Berthiot in Europe and distributed in this country by Paillard Products, Inc., New York. When Paillard first announced it, the lens was available only for the Bolex H-16 camera, which the company also distributes. Last month, Paillard announced that the lens was now available for use also on the following 16mm cameras: Maurer, Mitchell-16, Auricon Cine-Voice, Bell & Howell 70, Keystone 16mm, Cine Special, Bell & Howell Autoload and Automaster, Morton Soundmaster, Revere Magazine, and the Pathe

Super 16. It sells for about \$447.00.

The 16mm Pan Cinor has a maximum aperture of f/2.8, a focal length variable from 20mm to 60mm, and has a coupled viewfinder that shows the exact field at each setting. The lens is not intended to *replace* lenses of fixed focal length (each of which realizes a higher degree of optical quality for its own focal length) but to offer effects which cannot be obtained with them, such as:

Zoom and dolly shots . . . from long or medium to closeup in one movement.

Travelling shots . . . that keep the subject in motion at a fixed size. Before the advent of the Pan Cinor, such effects were possible only with use of camera

cranes or back-projection methods—obviously out of range of the amateur and 16mm professional.

Complete coverage . . . without switching lenses, catching every action of a sports event.

The Pan Cinor fits all of the above named cameras readily, although slight alterations are necessary on some. The Maurer drops its own finder, its regular C mount accepts the Pan Cinor without further modification. For the Mitchell-16, the Pan Cinor finder is removed and the lens mounted with a C mount adapter. It is also necessary to turn down diameter of the camera turret knob.

For use on the Auricon Cine Voice, it is necessary to obtain from the camera manufacturer a special door without its viewfinder. This may be purchased for \$42.00. For use on the Bell & Howell 70, the regular door of this camera must also be replaced with one having no finder. This costs \$35.00. The Cine Special Models I and II must have the turret drilled and tapped for C mount lenses by Kodak. The Morton Soundmaster drops its regular finder, and the Pan Cinor zoom lever must be shortened slightly to clear the film magazine. For the Pathe Super-16, no alterations to camera are necessary. However, the Pan Cinor coupled viewfinder is eliminated and the regular reflex finder of the camera used, which permits viewing scene through the lens as action is being filmed. The Keystone, B & H Autoload and Automaster, and Revere Magazine Camera mount the Pan Cinor with ease.

The focusing range of the Pan Cinor is 5 feet to infinity at all focal lengths. To control composition, you simply turn the lever and check the desired picture through the coupled viewfinder. The exposure is constant at all focal lengths, and the f/2.8 aperture is fast enough for indoor color or black-and-white filming.

It is recommended that the camera, when shooting with a Pan Cinor, be mounted on a sturdy tripod. In general, the lens is used like any lens of fixed focal length. Simply set the diaphragm in the usual manner according to a light meter reading of the scene. A simple chart is supplied with the lens that indicates the depth of field for each focal length and aperture used. The Pan Cinor may be focused by setting its focusing scale to the distance measured, or through the Bolex eye-level focuser.

In 16mm photography, uses for the Pan Cinor are unlimited. For the serious 16mm amateur who can afford it, the lens greatly simplifies photography in that in most instances it obviates the need for switching from one size lens to another with the consequent setting of focus and lens stop when it is desired to cut quickly from a long-shot to a closeup. By the same token, its value to the 16mm professional is obvious. And for filming TV film commercials it is a most ideal tool.

Harry Pennington Jr., of San Antonio, Texas, one of the first to acquire a Pan Cinor for his 16mm Bolex, described the value of the Pan Cinor from the viewpoint of the experienced cam-

(Continued on Page 508)

WHEN mounting the Pan Cinor on the Mitchell "16" camera, the coupled viewfinder is omitted. Lens is an ideal tool for use in production of 16mm industrial and TV films.



An Invitation...

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• If you have made 16mm motion pictures, using Bolex, Elgeet, or Nord stereo camera attachments, we invite you to submit your best 3-D films for exhibition January 4, 5, and 6, 1953, in American Cinematographer's first

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Sir: I plan to enter my film entitled: _____

_____ in your forthcoming 16mm 3-D FILM FESTIVAL.

My film is _____ feet in length, in color _____, black-and-white _____. It has sound: on film (optical) _____; on film (magnetic) _____; on separate tape or film (magnetic) _____; on discs (synchronized) _____.

Brief description of film subject or content _____

I will ship this film to you on or about (date) _____

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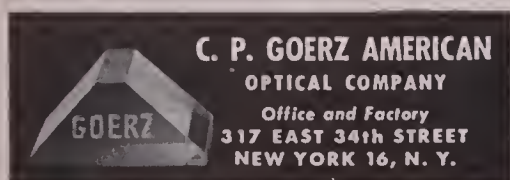
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EDITING FOR BALANCE

(Continued from Page 488)

graphically-perfect frame. But they do so only at the expense of jeopardizing the entertainment value of the picture as a whole.

So don't hesitate to shorten a scene. No one will feel as sentimental about it as the fellow who shot it anyway. Keeping in mind the basic rule "make your moving pictures *move*," when you have made your point, change the subject, or at least the angle of approach.

There is no excuse for "drag" in any motion picture, amateur or professional. Even the most beautiful landscapes or sea views in color can only sustain interest up to a point. And that point can be reached sooner than you think. Therefore, do not hesitate to cut them as soon as they have had time to register on the screen.

Of course, all these factors should be considered when the photography is being done; the cameraman should keep the editing of the picture in mind as he shoots. When filming purely scenic shots or sequences, the thing to remember is that every landscape or vista is composed of elements that are invariably worthy of closer scrutiny by the camera. Perhaps the trees that formed the principal mass in the long-shot will offer a lot of interest for closer shots, as will the shrubs, wildflowers and grasses where these also appear in the scene. Properly handled, these elements can make up for the absence of people in the scene to round out a three- or four-scene sequence.

When filming action it is generally considered good policy as an aid to editing to shoot the entire action cycle in order to achieve smoothness and naturalness. However, at the editing board it isn't necessary to include the entire footage in the same form and continuity in which it was filmed. For example if you go from a long-shot to a closer one on action where, say, someone is shown seating himself in a chair, you can cut the long-shot just as he starts to sit down, then cut to a closer shot just as he's getting settled. You'll get a much smoother flow of movement on the screen. It will save footage, too. All sorts of action can be similarly treated, too, with like benefits in picture interest.

Where spoken titles are used, the same technique applies: cut in the title just *after* the frame showing the character *starting* to speak. And when cutting back to the picture, show the person just *finishing* speaking. Never, never allow the person to appear talking for some length after the title ends. The

audience, while reading the title, will mentally bridge over the gap in the pictured action, and will accept this treatment as being much more natural than if the entire action is shown.

You are getting on with the story, moving progressively forward—which is the important thing—whenever you lop off any frames or footage that do not contribute directly to progression of the story. To establish the fact that a character leaves one room for another, it is not necessary to include in the edited film the whole action that takes him to and through the door of one room, and then pick him up as he emerges through the door in the next room. Too many amateurs make this mistake in their first efforts at continuity films. Once it has been established that the player is going through the door, the next scene can cut to him when he is well into the room. This illustration can have many applications. And while such cuts can involve only an inch or two of film, the sum total of such cuts in a picture can mean the difference between its being interesting or tedious.

One can use the same principle to speed things up and save footage in many other ways, too, especially if one knows how to balance shots of the actual action with intercut shots of somebody's apparent reaction to it.

Take a horse race movie, for example. Excitement is added and there is no loss of realism if the sequence is built this way: Begin with a shot from the grandstand of the horses getting away from the gate. Then cut to a long-shot (preferably from more or less of a reverse angle) of the crowd reacting to the always thrilling cry "They're off!" Then cut to a long-shot of the horses rounding the first turn. Next cut to a fairly close shot of only one or two people in the crowd, as each reacts to the way their respective favorites are performing. Next cut to a follow-shot of the horses racing down the back stretch, and follow this with more reaction shots of the crowd—preferably at increasingly closer angles. Cut to the horses as they round the final turn and into the home stretch. Follow this with a series of quick, close shots of various spectators as each anxiously urges his favorite on to the wire. Then cut to shots of the actual finish, after which you can cut to more reaction shots of the spectators—the lucky ones gesticulating their joy, and the unlucky ones tearing up their tickets and tossing them away.

All this of course has to be photographed first before you can edit it.

(Continued on Page 494)

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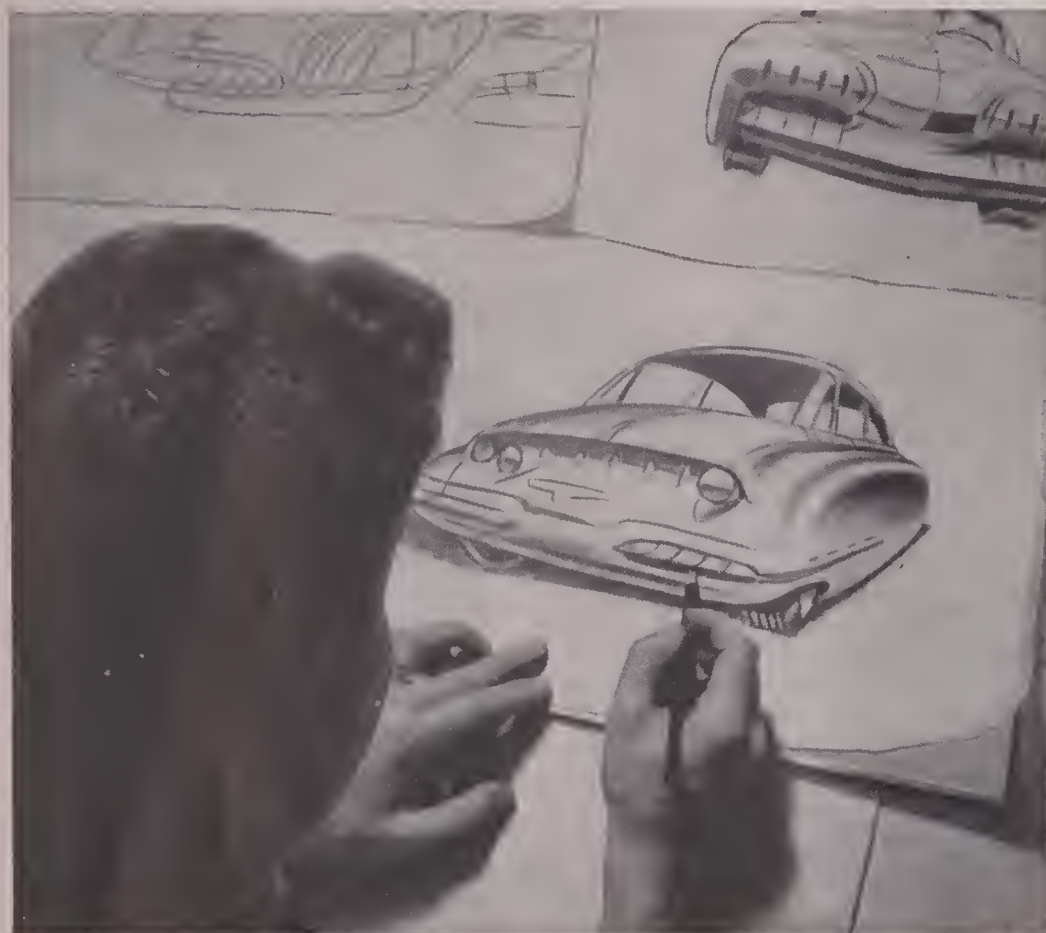
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This is why we feel that the finest combination of every factor won for the notable 16mm film subject *THE LOOK OF THINGS* the first prize in the Public Relations Category of the recent Cleveland Film Festival. The competition was keen, but this winner was outstanding. Every producer, every film man and, indeed, every individual with an interest in viewing a superior motion picture should make it his business to see this film. The producer would be pleased to arrange for screenings through inquiries directed to us.

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Unless you do your filming according to this pattern—think about the editing as you shoot—you won't have the material to use at the editing table. A horse race shot entirely from one position on the track is scarcely exciting on the screen. But filmed and edited as outlined above, it becomes an exciting, professional-like bit of film entertainment.

Perhaps in summarizing we should point up further the great importance of planning the editing along with the photography of a picture. This is very important for the movie amateur; the professional cinematographer doesn't have to follow this technique, because another person—the film editor—puts the film together; the cinematographer has a preplanned script to follow, which was worked out carefully with the editing of the picture in mind.

So remember this if you want your films to have the compelling interest, the professional flair that you admire in theatre films. END.

FILM SPLICING

(Continued from Page 486)

The film is clamped to the splicer base in the usual way except that a banking edge is required in order to obtain perfect alignment control throughout the splicing cycle. The clamps, therefore, incorporate a pair of film followers (Fig. 3) which push the film to the banking side of the clamp prior to its being closed.

After the film is indexed and clamped, it is then cut, and the clamp still holding the film is swung through a 180° arc into the heat-sealing position. The same cutting blade is used to cut both pieces of film. As the second clamp is rotated to the heat-sealing position, the edge of the film to be heat-treated is coated with the plasticizer (Fig. 3).

At this point it should be noted that one of the major splicing technique changes is that the film is clamped with the emulsion side facing down and the cellulose side up. Of course, when the film is pivoted over a 180° arc to the heat-sealing position, the emulsion is facing up and the pressure applied to the emulsion surface. The heat is then applied to the cellulose side (Fig. 2).

Different problems are presented by 16mm and 35mm films during the heat cycle. The frameline of a 16mm picture is on line with the sprocket hole, which fills up completely during the heat cycle. With 35mm film, there is also the tendency of the acetate to flow into the four sprocket holes adjacent to the point of weld. To prevent this flow, ears have been added to the heater platten (Fig. 4)

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which are the same size and shape as the sprocket holes in the film, and which extend above the platten 0.006 inch. (These occupy the four sprocket holes of the film and thus prevent the flow of acetate into them.—Ed.)

The acetate, besides flowing sideways, would also flow along the line of heat and out each end were it not restrained by edge-flow plates (Fig. 4) which rest against the banking edge of the film.

When splicing magnetic film, the stationary and movable knife blades are replaced with those made of non-magnetic materials (Fig 5). The same procedure is then followed for splicing magnetic film as that used for picture film. One of the advantages of splicing magnetic film over motion picture film is that the oxide coating of the former does not tend to roll back the few thousandths of an inch which is characteristic with motion picture film.

When the splicer is to be used entirely for 16mm magnetic film, it is advisable to change the location of the film index pins to permit splice to be located between sprocket holes rather than through them. This eliminates the reperforating process.

A magnetic film having no modulation was spliced every 20 feet and then recorded without first erasing or demagnetizing the film. No audible noises

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were noted in the playback. An additional film, having a frequency range of from 30 to 15,000 cycles recorded on it, was spliced in each of the various fixed frequencies. This was checked on RCA equipment with the following results noted:

Frequencies from 1,000 to 15,000 cycles: splice was inaudible or at the same level as that of the normal noise of the material.

Frequencies from 700 to 1,000 cycles: slightly noticeable when the film was run forward or backward in this range.

Frequencies below 700 cycles: inaudible.

Strength tests indicated that the spliced area was equal to 90% of the tensile strength of the film itself.

When 16mm or 35mm standard print stock, having a stripe of magnetic material on the side opposite that of the emulsion, is used, it is necessary to replace the stainless-steel heater platen with a stainless-steel platen coated with Teflon. This prevents the oxide coating on the film from adhering to the heater platen.

The Teflon-coated platen is also used to advantage when splicing color film raw stock. It prevents the anti-halation coating present on coated raw stock from sticking. Later, when using the machine to splice color prints, it has been found that replacing the Teflon



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tape with cellophane tape is advantageous.

Splicing of negative 16mm or 35mm film gives exceptionally gratifying results. When prints are made from spliced areas, no evidence of the splice can be noted. No out-of-focus frames are introduced, and perfect registration of the picture is achieved without the side shift that so often results when the cement method of splicing is used.

To splice raw stock in the dark with the Presto-Splicer, it is necessary to remove the normal viewing lights or to cover them with Wratten filters approved for the stock that is to be spliced. Previously, splicing raw stock has entailed hit-or-miss methods, and one could never be sure that the emulsion at point of splice had been completely scraped off. Because, in the butt-weld method, no scraping or use of cement is involved, it is relatively easy to splice raw stock in the total darkness of a darkroom.

When splicing 16mm raw stock in this way, it is a decided advantage to move the indexing pin of the splicer to the center of the frame in order to avoid having to re-perforate in the dark. This method of splicing has been successfully used in darkrooms for processing, eliminating the need for stapling leader stock to "takes."

It is our opinion that butt-weld splicing has many advantages over conventional cement splicing. Splices can be made as rapidly as every 10 seconds and the film used immediately in the darkroom. Now that the motion picture industry generally has changed over to use of safety film, the Prestoseal butt-weld method of splicing can be of invaluable service.

The foregoing article is a condensation of a paper prepared by Leonard A. Herzig, Prestoseal Mfg. Corp., 37-27 33rd St., Long Island City 1, N. Y., and published in the *Journal of the SMPTE* for February, 1953.

THE BIG CHANGEOVER

(Continued from Page 481)

attachments on them. All this meant that special methods had to be devised to hold the anamorphic lenses so they could be mounted properly before the studio's cameras. Before long plans were set in motion to have the anamorphic lens re-designed and mounted in a conventional barrel-like housing. This task was given to Bausch & Lomb Optical Company. Before the end of April, five of the improved CinemaScope camera lenses were delivered to Sol Halprin.

Prior to this, technicians in the studio's camera department spent many nights checking and re-checking the



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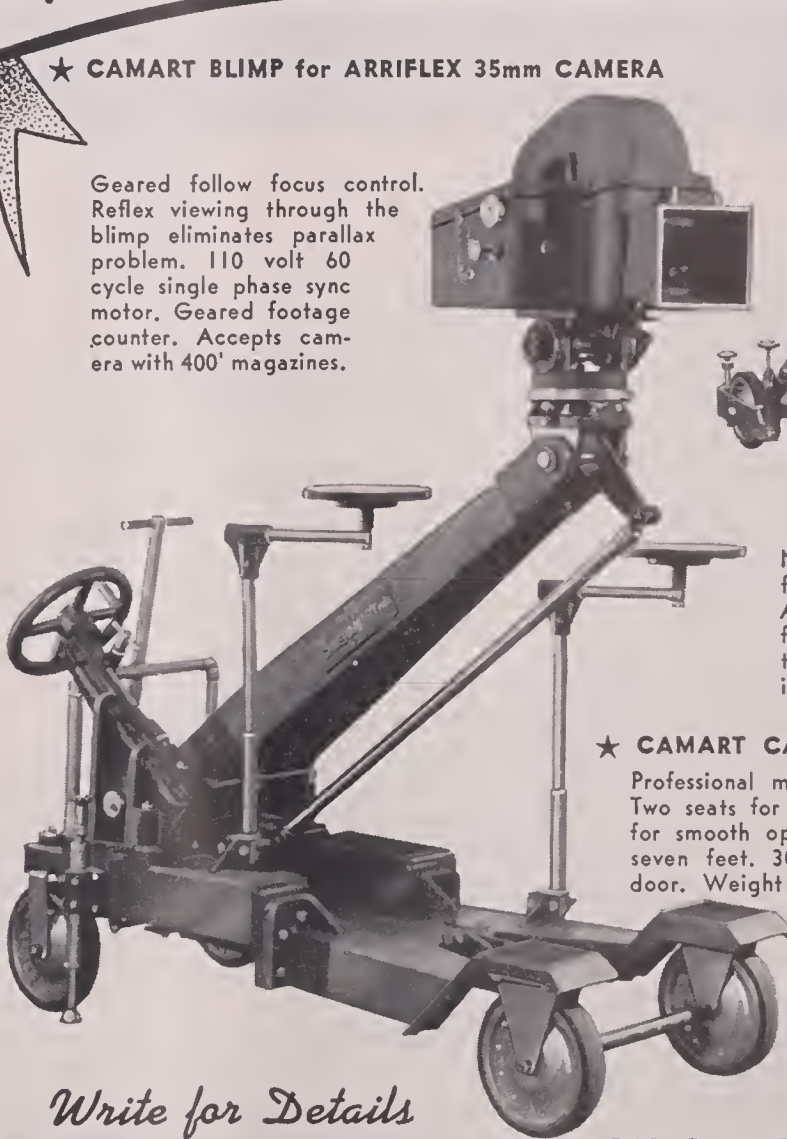
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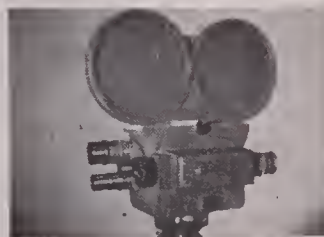
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calibrations on the original two anamorphic lenses that were being used in shooting the initial CinemaScope productions. Special types of telescopes had to be purchased so that the Camera Department could check the lenses for quality of focus and calibrations, to make sure the calibrations were holding up, and at the same time to determine if anything could be done to aid and improve sharpness of focus.

The studio's Camera Precision Machine Shop staff had to go to work immediately building new holders and designing new matte boxes. It had to design means and methods of using the conventional finders of the cameras in order to get the extremely wide-angle view that the anamorphic lens yields; and this all had to be ready in time for use in the photography of three CinemaScope pictures—"Beneath The 12-Mile Reef" having now been added to the schedule of CinemaScope productions.

As difficult and complex seemed the problem of converting to CinemaScope, this was only half the story. CinemaScope had a complementary new feature, stereophonic sound, which in one sense posed a more involved conversion problem to the Sound Department than did CinemaScope to the Camera De-

partment. Whereas the Camera Department was able to use standard photographic equipment in conjunction with the CinemaScope lens, the Sound Department was confronted with the task of redesigning the entire sound recording system to a multiple-track system.

Like CinemaScope, the sound conversion program began early this year. Local directorship of this program was undertaken by Sound Department head Carl Faulkner and sound development technician Lorin Grignon, with the overall sound conversion being supervised by New York technical director Earl Sponable.

First step was the development of a magnetic sound recorder and mixing panel which would handle three or more separate sound channels. Where one track carried all the dialogue before, three individual tracks would now be employed for dialogue. In conventional sound recording, the sound track ran along the edge of the 35mm film strip.

Where would there be room for three or four sound tracks? Here was the answer: It was obvious that there wouldn't be enough room for multiple sound tracks on the film strip as it was. The only variables were the sprocket holes and the picture itself. By cutting

down the width of the sprocket holes and by cutting the aspect ratio from 2.66-to-1 to 2.55-to-1, two sound tracks could be placed on either side of both rows of sprocket holes. (See diagram on page 478, this issue.)

Because of the problems involved in multiple photographic sound tracks, it was obvious that magnetic sound recording would be the only feasible method for stereophonic sound release. Now, a practical method for "striping" or laying the several sound tracks on the picture film, had to be devised. The final details of this operation have been worked out, so that highest fidelity magnetic tracks can be placed on the film strip to insure top quality sound reproduction on all tracks.

To be sure, there were many things to tackle in the development of a multiple-track sound system. By production necessity, one of the first was the design and construction of a sound recorder, for putting dialogue on three separate tracks simultaneously. The first triple-track recorder designed for recording and playback was seven feet high and weighed 600 pounds. Although it was good from an operational viewpoint, it was impractical because of its great bulk. So the next problem was to put all the components of stereopho-

nic sound recording into a more practical and portable form. This development was carried out swiftly and effectively, the new triple-track recorder being every bit as compact and portable as the former single-track recorder. It was a project which required two and a half weeks of intense research and design, night and day. Yet it represented only a small phase of the Sound Department's job of converting to stereophonic sound. In effect, the entire sound channel (all the equipment necessary to handle the various steps of sound recording and reproduction) had to be rebuilt for stereophonic sound. Not only was this a monumental task, but it was one which had to be accomplished in an amazingly short time, so the new system could be used in the entire CinemaScope program and so theaters could gear for stereophonic sound.

By the nature of the principal involved, the intermediate CinemaScope image is greatly distorted. This fact presented a problem to the film editor, who views all footage in the Moviola in order to edit it. The CinemaScope scenes were squeezed out of proportion to the degree that the cutter was unable to select and match scenes with any degree of accuracy. This meant that some sort of compensating lens would have to be adapted to the Moviola so that the film editor could view scenes in their normal proportion. An additional "fly in the ointment" was the fact that several different types of Moviolas are in use on the lot. Different types of lenses would have to be designed for each type of Moviola. The Precision Machine Shop went to work and developed lucite lenses which, when placed in front of the Moviola viewing area, unsqueezed the picture so it had the normal CinemaScope look. New lenses had to be built for the projection-type Moviolas used by shooting companies for picking and matching action on the set. These were built so that the Moviolas could throw a CinemaScope picture onto a small screen.

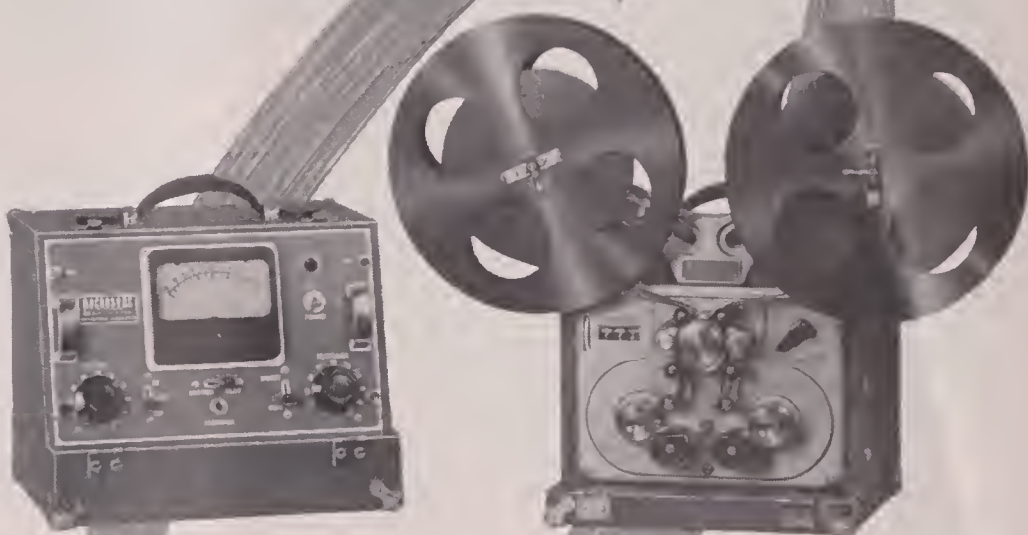
Also being built by the Camera Department is any entirely new type of finder which will encompass the wide angle of CinemaScope and will give the cameraman good, clear viewing on the set. The first prototype is nearly completed and will be tested soon.

Camera personnel itself has played a tremendous part in the pioneer work that marked the earliest days of CinemaScope photography. Cameramen, operators and assistants, through their ability and enthusiasm, have mastered a heretofore unknown technique almost overnight.

Since projection is a necessary complement to photography, all of the cam-

No compromise with
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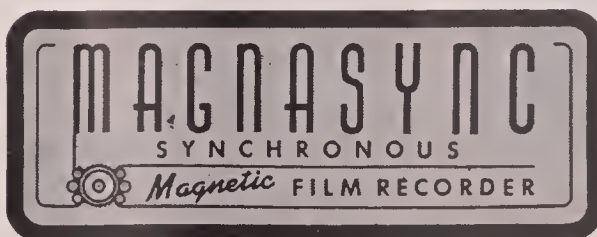
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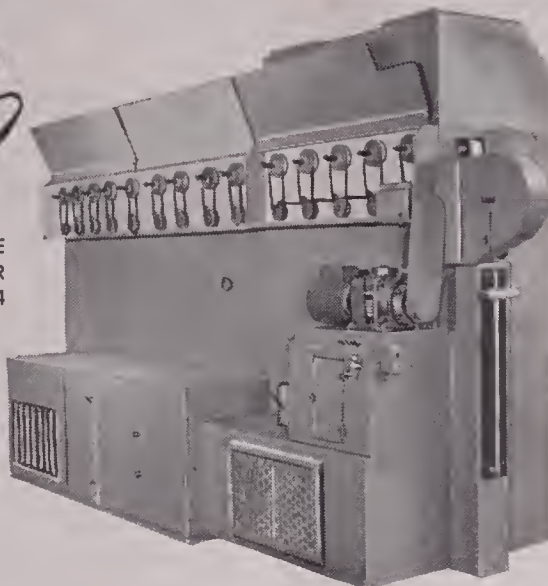
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era changes resulting from the conversion to CinemaScope have been accompanied by changes in projection technique. Most important of these, of course, is the compensating anamorphic lens which, when attached to the projector, returns the squeezed scene to its original proportion. To accommodate the new triple-track sound system, projectors had to be equipped with a new magnetic sound reproduction head. This reproducing head was a development of Earl Sponable and his New York research staff and the sound department.

The installation of new sprockets for exact registration with the new smaller sprocket holes has been completed on several of the studio's projectors.

A 31-foot Miracle Mirror screen has been set up in projection room 1. Projection room 5 has a 22-foot picture and Mr. Zanuck's projection room has a 17-foot picture. Stage 2, which is the new re-recording stage, has a 42-foot picture as well as two special screens on Stage 1 for the Music Department. Projection room 3 has a 26-foot screen and six of the studio's regular projection rooms are being equipped to handle CinemaScope pictures. All projection changes have been supervised by Sol Halprin and Chief Projectionist Bill Weisheit.

Equipment used by the Special Photographic Effects Department under Ray Kellogg and the Optical Printing Department under Jim Gordon have undergone numerous changes. New types of mounts have been built, and many methods have been devised to fit the mounts onto the many types of camera set-ups that these departments employ with the new anamorphic lenses.

The Electrical Production Department has very definitely been affected by the new dimensions of CinemaScope. Naturally, there is little additional lighting problem for outdoor scenes photographed in the new medium. But in the case of large interior sets which had to be lit artificially, there was a problem. The greatly expanded range of the camera equipped with anamorphic lens prevented electricians from moving their lights in as closely as they could in conventional photography. This meant that larger units had to be employed to compensate for the light loss incurred by the greater throw. In addition to this new obstacle, the fact that often in CinemaScope 'greater areas have to be lighted for larger scenes has put additional requirements on the Electrical Production Department for more and more light.

In one sense, the conversion of the Moviolas used by the Cutting Department has been a problem of the Camera and Sound Departments. But the Film Editorial Department has had many other obstacles to overcome. The single-



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strip Eastman color film that is used with CinemaScope is a thicker stock than the magnetic sound footage. Since film editors use the double system when editing (picture on one track, sound on another), the problem arose of the picture reel and sound reel being of different sizes. In other words, a 1000-foot reel will hold 1000 feet of sound track but only 800 feet of picture, because of the greater thickness of the latter. This presented a problem wherever the two tracks had to be rewound together. It was solved by employing a clutch on the sound reel to slow it down to the speed of the picture reel.

Many other operating adjustments have had to be made since the first reel of CinemaScope footage reached the cutting rooms. All of these adaptations to the new medium have been accomplished without delay, at minimum cost.

According to Jerry Webb, head of the Cutting Department, CinemaScope has a terrific asset over conventional photography, from the cutter's point of view. The wide range of CinemaScope scenes tends to eliminate over-cutting. The result is a smoother product, with less cuts than were required by the old system.

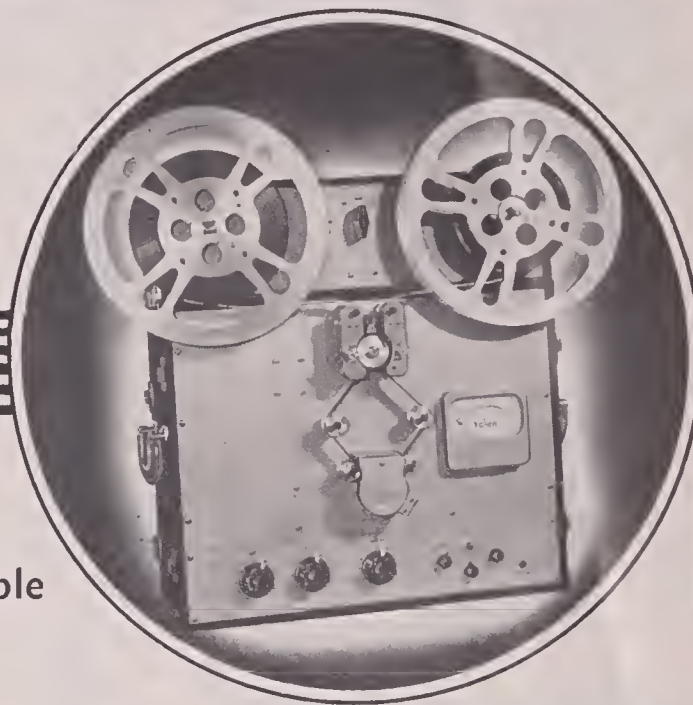
Contrasting the radical changes that many departments have undergone in the conversion process, a few production departments have had to alter their operating procedure very little due to CinemaScope. For example, supervising art direct Lyle Wheeler reveals that his department has been virtually unaffected by the transition to the CinemaScope process. For instance, the interior tent scenes in "The Robe" were originally designed for conventional photography, yet the set was not altered at all. In the case of larger sets, the shapes have been changed slightly to conform to the new aspect ratio, the emphasis being on width. This change in picture frame proportion is an advantage to the Art Department inasmuch as it eliminates the necessity for many of the matte shots that would have been required in the old system. So the conversion to CinemaScope by the Art Department has been a natural and most advantageous one.

To the director, CinemaScope offers a great new opportunity for expression. No longer will he be limited by the proscenium. Coupled with stereophonic sound, his visual and aural selectivity are greatly augmented.

To the actor, CinemaScope provides a more solid basis on which to display genuine acting ability. By the same token, its requirements of the actor are far greater than were those of the conventional medium. The actor in CinemaScope is often required to do entire scenes without a break, much like the technique employed in stage acting. This means that the actor must memorize more lines and must have a greater

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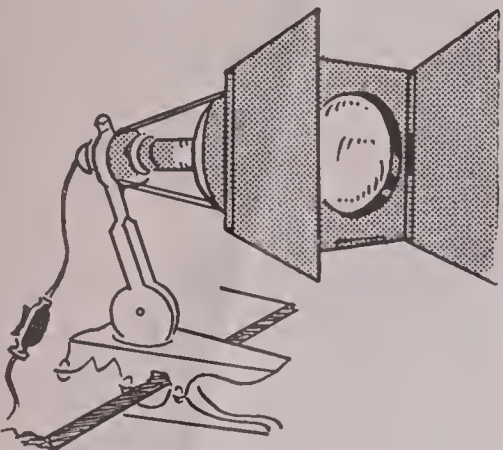
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understanding of the character he is portraying. In repayment for this extra effort, the actor has the satisfaction of "living" his part not fragmentarily but completely, thus yielding a greater performance.

To mention three, six or twenty of the studio's departments in the conversion to CinemaScope would be far from the whole story. For in one way or another, every department and person on the lot has been affected by the introduction of this new medium into production technique. Whether the individual transition has been great or small, it has been an important part of the overall conversion.

To name all the heroes in the story of CinemaScope would be impossible here. It is the result of the combined effort of specialists in many fields, all of whom felt that the challenge of CinemaScope could be met. END.

"PENTHOUSE" REPRODUCERS

(Continued from Page 478)

Kinevox, Inc., Magnasync Mfg. Co., Ltd., Westrex, and others are busy supplying the country's movie houses with the new sound heads, in order that they may be prepared to show CinemaScope films.

The "penthouse" sound head becomes a permanent installation, and permits showing of any kind of pictures—two-dimension, three-dimension or wide-screen, and stereophonic sound or ordinary sound. For CinemaScope, the projectionist threads the four-track magnetic sound film through the new "penthouse" head, then continues through the regular picture-gate mechanism as for any type of film, by-passing the ordinary single-track-sound pickup system. (Fig. 3)

For pictures having the ordinary single-track-sound, the projectionist utilizes only the guide rollers of the "penthouse" sound head; he then threads the film through the regular picture-gate mechanism and optical or single-track-sound pickup system as he ordinarily would thread the machine. (See Fig. 4)

The new type "penthouse" sound heads made by Kinevox, Magnasync and Westrex are pictured in Fig. 1. The Kinevox unit, which is distributed by Natural Sound Corporation, Hollywood, sells for \$1425.00 per pair. Rollers and other moving mechanisms are non-magnetic stainless steel. It features tight-loop transport action, oilite bearings, hardened and ground shafts, with all manufacturing tolerances carried to less than one one-thousandth of an inch. Provision has been made to take up extra film length, due to various heights of projector heads, and still



WHEN single-track sound films are screened, projectionist utilizes only the guide rollers of the penthouse sound head, threading the film as shown by dotted line and by-passing the four-track reproducing mechanism.

keep the required spacing of 28 frames between sound and picture. A four-channel Brush sound head is used. The Kinevox "penthouse" is 9 inches long, 3 3/4 inches high and has an offset to 6 inches in height and 4 5/8 inches in depth. In mounting, the upper film magazine of the projector is raised only 3 3/4 inches, and thus may be accommodated in the majority of projection booths.

Magnasync Mfg. Company's "penthouse" head is tradenamed "Magnaphonic," and is designed on the popular "Synkinetic" dual-flywheel principle, which was originated by Magnasync engineers. The principle is notable for the use of different mass and inertia in the two flywheels to prevent interaction, and the silicone-packed "clock spring" filter-arm damping mechanism.

The company points out that theatres already having Magnasync 335-T and other separate reproducers can convert to the Magnaphonic 4-track heads at nominal cost. Magnaphonic equipment can be purchased in several alternative packages ranging from the basic reproducers to the complete stereophonic sound system. Prices range from \$875 to \$4400.

The Westrex R9 Stereophonic Reproducer was developed in Westrex Hollywood laboratories. It utilizes two impedance drums which results in the tight loop desirable for magnetic reproduction; the well-known Davis drive and flutter suppressor; and idler roller adjustable to the length of the film path of different makes of projectors; and a large 32-tooth sprocket which controls the film on both sides of the magnetic head. The unit measures 6 3/4 inches in height, 13 inches in width, and 6 3/4 inches in depth. It is a film-pulled mechanism, same as the Kinevox

and Magnasync, and does not require any special motor or drive.

Although the "penthouse" four-track sound head development is not directly related to cinematography, it will undoubtedly prove interesting to readers in view of its importance in the steadily changing film production scene. It may well be that it will presage a direct switch to the 20th Century-Fox four track method for other wide-screen and 3-D film productions which include stereophonic sound, from the separate sound track methods presently in use for such films. Film producers will watch future developments with considerable interest.

The entire development marks another stage in the technical advances in sound film that have been brought about by TCF's Earl Sponable and his associates in the last two decades.

"LET ME SEE"

(Continued from Page 483)

camera films had been precluded by the Department's practice of keeping all its camera equipment uniformly adjusted in order to serve just such emergencies as this.

One major photographic problem was encountered when we found it impractical to use makeup on our large cast of amateur players. Particularly did we run into trouble when we had close shots to film involving, say, a child with its very light complexion, and its father with suntanned face. We compensated for this entirely by lighting, sometimes using a separate light source, tightly goboed, for each individual, and with the light on the parent carefully scrimmed.

We used Commercial Kodachrome film entirely. In our exterior shots, reflectors were used for fill light. Once when shooting an important exterior, we ran into a multiple problem of Los Angeles "smog," and deep shade from a large tree. We never were quite able to match the color in this shot with that of the rest of the picture, although the difference in the final print is quite small.

As in professional studio production, the next stages of our operation involved film processing, which was handled by Eastman Kodak. Company's Hollywood laboratories; re-recording our magnetic sound to optical tracks, which we accomplished using our Auricon recorder; and duping the release print in our film laboratory. Our laboratory, which cost \$35,000 and which at one time was considered the model 16mm film laboratory in the United States, was designed by Sidney Solow, head of Con-



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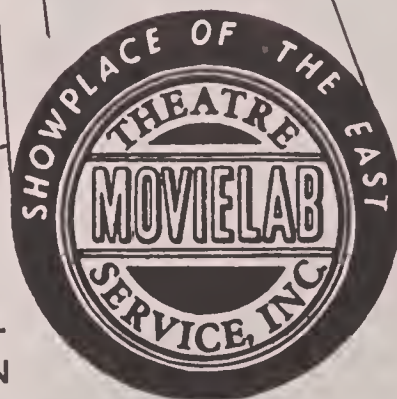
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The department's prize piece of photographic equipment, of course, is the Mitchell "16" camera. Additional cameras include three Cine Specials, twelve Bell & Howell 70-DL's, and several Bolex H-16's.

When we were presented with the award for this picture by Carey Wilson of the Screen Producers Guild, I think something or other was said about the crew deserving credit for the picture's success. Actually, this statement wasn't necessary, for the film speaks for itself in this regard. This was a film that from

start to finish depended entirely on complete cooperation and sincere enthusiasm from all concerned with its production.

"Let Me See" was not the only film with which the department was concerned last year. No less than twenty films were in some stage of production while we were shooting. This offered many problems of studio management and utilization of equipment and stage facilities. For example, one of us was at work preparing a film for the American Heart Association—a three-reeler now being edited; the other was putting the final touches on a script for a psychological problem film now up for possible production.

The films we make at USC serve a three-fold purpose: They all have an educational function (many are sponsored); they teach us how to make films under actual production conditions; and most important, they are the showcase for our work.

And what about the students who work together to make these films? Most of us go into documentary and educational film production. **END**

SHOOTING A ROYAL AIR FORCE TRAINING FILM

(Continued from Page 479)

crashes, they will naturally ask themselves, "What would I have done in his place?"

The film then shows the right thing to do, starting with diagram sequences which explain how the emergency service operates.

A problem in shooting this film was the aerial photography. As an aircraft is most likely to get into difficulties in bad weather, many aerial scenes were purposely shot in cloud and bad visibility to create the proper atmosphere.

No jet aircraft capable of accommodating a motion picture camera and operators were available to us, so aerial filming was done from a war-time Lancaster. The maximum speed of this aircraft is only about 200 knots, and to minimize vibration the actual flying speed was kept down to 180 knots. The Meteor jet fighter used as the subject in the film *could* fly as slowly as 180 knots—but no less—and at that low speed, the attitude of the plane is wrong. The nose is higher than it would be in normal flight. Whenever the horizon was not seen, therefore, the camera was tilted slightly to compensate for this. To film long shots, with the horizon visible, both the Lancaster and the Meteor were maneuvered into shallow dives.

The door of the Lancaster was removed and a Newman-Sinclair spring-driven camera mounted behind the opening. Sections of automobile tires placed under the tripod legs insulated the camera from the vibrations of the aircraft.

The Newman-Sinclair holds only 200 feet of film, so a signaling device insured that the Meteor pilot carried out the required actions well within the limits of the 2 minutes running time available. This device consisted of a push-button on the front of the camera, connected to a signal light near the Lancaster pilot. If the Meteor were required to break formation or carry out any other maneuver in the middle of a shot, the Lancaster pilot would call the Meteor immediately the signal light flashed. In practice, the time which elapsed between pressing the signal button and the Meteor taking the required action, was only 2 to 4 seconds.

It was difficult to film convincingly the Meteor flying in cloud. If the cloud was too thick, the two aircraft lost sight of each other and were forced to break formation. At other times the Meteor merely appeared motionless against a plain white background—not exactly the most photogenic type of shot. The best effect was obtained by the Meteor flying just above the cloud tops or just

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below the cloud base, provided there was plenty more cloud above or below.

Closeups of the pilot to cut in with flying shots are normally filmed convincingly in the studio by back-projection, but this was too costly for a short training film. Nevertheless, these shots were made satisfactorily outdoors by only shooting when there were no clouds to reveal the fact that the aircraft was stationary. For sunlit scenes, we waited for a cloudless blue sky, while for scenes in or below cloud a flat dull sky was the answer. In addition, all shots of the pilot in the cockpit, with the exception of big closeups, were filmed with the camera tracking either in or away from him, thus helping to maintain the illusion that the aircraft was actually in flight.

— Here, reflections from the curved plastic cockpit hood often proved disturbing. Therefore the craft was turned to a position where only a flat horizon with no buildings could be seen reflected from the hood. While shooting the first of these scenes, it seemed that even these reflections would spoil the shot because the green of fields was very obvious; but filmed in black-and-white and with the horizon slightly out of focus, the reflections were completely unrecognizable and might easily have come from the wings of the craft itself.

The air crash in the opening sequence proved difficult to shoot. The build-up sequences were, of course, easy enough, viz.:

Longshot—Aircraft coming down through cloud,

Closeup—Pilot's face looking anxiously around,

Big closeups of fuel gauges,

Longshot—Aircraft flying low, and finally — it's disappearance behind a clump of trees.

But the sequence had to end with an actual wreck. To destroy an aircraft specially for a short training film was, naturally, out of the question. About five such films could be made for the cost of one Meteor! Neither would a model be likely to convince the critical audiences for which the film was intended. However, large numbers of Meteors fly daily over the British Isles and inevitably there are genuine accidents. But we had a long wait . . . It was only after all other scenes had been shot and the film almost ready for dubbing that we located a suitable crash and got our camera on the spot, at the other end of England, before the wreckage was cleared up. END.



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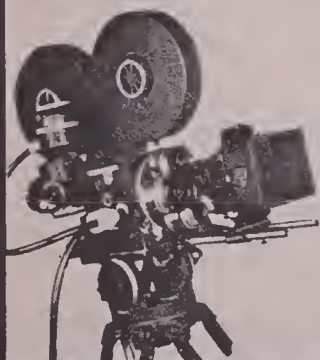
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Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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ALLIED ARTISTS

- HARRY NEUMANN, "Dragonfly Squadron," (3-D), with J. Hodiak and B. Britton. Lesley Selander, director.
- HARRY NEUMANN, "Bomba and the Green Idol," Ford Beebe, director.
- ELLIS CARTER, "Arrow In The Dust," with Sterling Hayden, Lesley Selander, Dir.

COLUMBIA

- HENRY FREULICH, "The Kiss and the Sword," (Technicolor) Richard Castle, dir.

METRO-GOLDWYN-MAYER

- JOSEPH RUTTENBERG, "Miss Baker's Dozen," (Ansco Color) with Greer Garson, Robert Ryan, Robert Z. Leonard, director.
- PAUL C. VOGEL, "Rose Marie," (Technicolor, CinemaScope) with Ann Blyth, F. Lamas, H. Keel, Mervyn LeRoy, director.
- GEORGE FOLSEY, "Executive Suite," (Wide Screen) with W. Holden, J. Allyson, B. Stanwyck. Robert Wise, director.

REPUBLIC

- JACK RUSSELL, "Hell's Half Acre," with Wendell Corey, Evelyn Keyes, Marie Windsor. John H. Auer, producer-director.

R.K.O.-RADIO

- WILLIAM SNYDER, "Rangers of the North," (3-D, Technicolor) with Victor Mature, Piper Laurie, W. Bendix. Louis King, director.

20TH CENTURY-FOX

- LUCIEN BALLARD, "Prince Valiant," (Technicolor, CinemaScope) with Robert Wagner, Janet Leigh, Debra Paget. Henry Hathaway, director.
- CHARLES G. CLARKE, "Night People," (Technicolor, CinemaScope) (Shooting in Germany) with Gregory Peck, Rita Gam. Nunnally Johnson, producer-director.
- HAROLD LIPSTEIN, "Three Young Texans," (Panoramic Prod.) (Technicolor Wide-screen) with M. Gaynor, K. Brasselle, and J. Hunter. Henry Levin, director.
- LEO TOVER, "Man In The Attic," (Panoramic Prods.) (Wide-screen) with J. Palance. C. Smith. Hugo Fregonese, director.
- MILTON KRASNER, "We Believe In Love," (Technicolor, CinemaScope) with Clifton Webb, Jean Peters, Jean Negulesco, director.
- EDWARD CRONJAGER, "Gatling Gun," (Panoramic Prods.) with Van Johnson, Joanne Dru. Rudy Mate, director.
- LLOYD AHERN, "Gorilla At Large," (Panoramic Prods.) with Cameron Mitchell, Ann Bancroft. Harmon Jones, director.

UNIVERSAL-INTERNATIONAL

- JOHN SEITZ, "Saskatchewan," (Technicolor, Wide-screen) with Alan Ladd, Shelly Winters. Raoul Walsh, director.
- CARL GUTHRIE, "Yankee Pasha," (Technicolor, Wide-screen) with Jeff Chandler, Rhonda Fleming. Joseph Pevney, director.
- WILLIAM DANIELS, "The Far Country," (Technicolor, Wide-screen) with James Stewart, Ruth Roman. Anthony Mann, director.
- MAURY GERTSMAN, "Fort Laramie," (Technicolor, Wide-screen) with John Payne, Mari Blanchard. Jesse Hibbs, director.
- CARL GUTHRIE, "Johnny Dark," (Tech., W-screen) with T. Curtis. G. Sherman, dir.
- RUSSELL METTY, "Magnificent Obsession," with J. Wyman. Douglas Sirk, director.

WARNER BROTHERS

- WILFRID CLINE, "Rear Guard, (3-D, War. Col.) with G. Madison. David Butler, dir.
- ROBERT BURKS, "Dial M For Murder," (3-D, War. Col.) Ray Milland. A. Hitchcock, director.
- PEY MARLEY, "Phantom Ape," (3-D), with K. Malden. Roy Del Ruth, director.
- SIDNEY HICKOX, "Them," (3-D, War. Col.) Gordon Douglas, director.

INDEPENDENT

- CLIFF STINE, "Americano," (Eastman Color, Wide-screen). Budd Boetticher, dir.
- LESTER WHITE, "Silver Dollar," (Cin.Col) (Wide-screen). Fred Sears, director.

TELEVISION

(The following directors of photography were active last month in photographing films for television, or were on contract to direct the photography of television films for the producers named.)

- LUCIEN ANDRIOT, "Life of Riley" show, Hal Roach.
- NORBERT BRODINE, "Crown Theatre," Bing Crosby Enterprises.
- DAN CLARK, "Favorite Story," Ziv TV.
- EDWARD COLMAN, "Dragnet," Mark VII Prods.

- ROBERT DEGRASSE, "Make Room For Daddy," D.P.I. and Marterto Prods., Inc.
- GEORGE DISKANT, "Four Star Playhouse," Four Star Prods.
- KARL FREUND, "I Love Lucy," Desilu Prods.
- FRED GATELY, "The Big Town," Gross-Krasne Productions.
- BENJAMINE H. KLINE, "Fireside Theatre," Frank Wisbar Productions.
- HAL MOHR, "The Joan Davis Show," Joan Davis Productions.
- WILLIAM MELLOR, "Adventures of Ozzie and Harriett," Stage 5 Productions.
- ERNEST MILLER, "Hopalong Cassidy," William Boyd Productions.
- VIRGIL MILLER, "You Bet Your Life," (the Groucho Marx Show), Filmcraft Productions.
- KENNETH PEACH, "Ramar of the Jungle," Arrow Productions.
- ROBERT PITTACK, "Cavalcade of America," Jack Chertok Productions.
- WALTER STRENCE, "My Little Margie," Roland Reed Productions.
- MACK STENGLER, "The Liberace Show," Snader Telescription Corporation.
- HAROLD STINE, "Superman," Superman, Inc.
- PHILLIP TANNURA, "The Burns and Allen Show," McCadden Corporation.
- STUART THOMPSON, "Your Jeweler's Showcase," Sovereign Productions.
- GILBERT WARRENTON, "Chevron Theatre," Revue Productions.

VARISCOPE LENS

(Continued from Page 484)

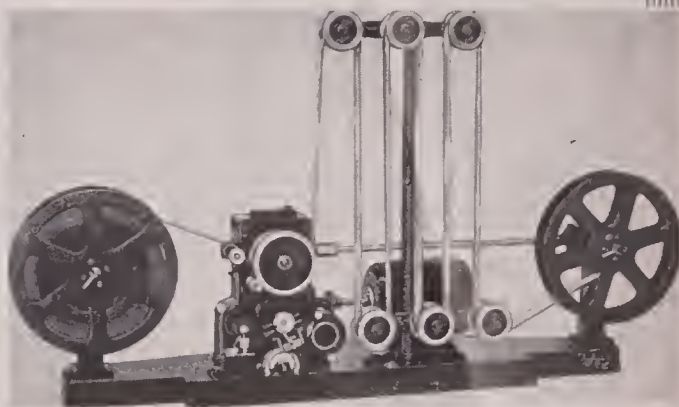
The tremendous success of "The Robe" is certain to set the style for ultra-wide, panoramic type movies. With Variscope, an exhibitor can give panoramic screen treatment to a great many of the films which are now being released by all studios, providing he has the theatre and screen for it. And where these pictures have stereophonic sound, the exhibitor is in position to more successfully meet the competition of CinemaScope films—or, when showing a CinemaScope feature himself, to bring other non-CinemaScope films on the same program up to comparable screen size.

An interesting sidelight on the development of the Variscope lens is the fact it "was born about ten years too soon," according to Young. Years ago, long before the advent of wide-screen movies, Young developed the basic idea for his lens, but didn't know what to do with it. His original Variscope (actually it had not yet been so named) was stored, and it remained almost forgotten until recently when the furor of 3-D and wide-screen movies suddenly electrified the technical staffs of all studios. As Young worked with his MGM associates in developing the studio's 3-D and wide-screen processes, he saw the possibilities his zoom-type projection lens held in the new order of film making. He renewed research and development on the lens, and recently the prototype Variscope was

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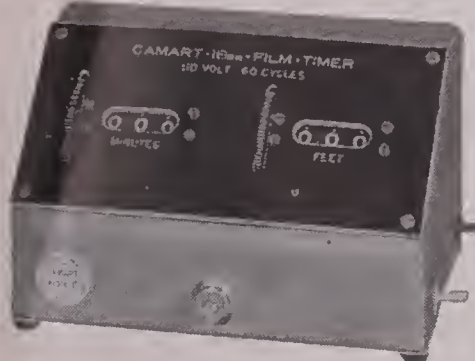
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demonstrated and pronounced highly successful.

The Variscope is now in production by Pacific Optical Corp., Los Angeles. Sale and distribution is to be handled by National Theatre Supply Company, with Young drawing royalties from sales. MGM will not share in the profits in any way. The studio, notable for its efforts in aiding the nation's small film exhibitors, many of whom have been hard hit in the transitional period of wide-screen movies, is elated that this important exhibitor aid was developed at MGM. Officials see in it great new possibilities for the theatre owner. Not every movie house can equip for CinemaScope; but all can now show pictures in any one of the newer wide-screen formats, thanks to the Variscope lens attachment.

For the industry, and particularly its cameramen, the advent of the Variscope holds much promise. It means the producer of non-anamorphic type movies will be better able to compete with CinemaScope productions. The result may well be an early resurgence of wide-screen and 3-D film production, now somewhat curtailed, with consequent increasing assignments for cinematographers. Many of these men, incidentally, see in the Variscope a remarkable new projection tool that gives new scope and luster to their camera work.

PAN CINOR LENS

(Continued from Page 491)

eraman in a recent issue of the *Bolex Reporter*. Said Pennington: "One of the major problems confronting the small producer of motion picture films is his lack of facilities for camera movements. Panning the camera can be done with most any reasonably good tripod, but a dolly shot becomes extremely difficult except under the most exacting conditions. Dolly shots in the field can just about be written off as impossible, and even in the small studio many 'takes' must usually be made to get the desired smoothness in a dolly shot.

"The Pan Cinor lens completely solves this entire problem. The zoom action is smooth, either fast or slow. We find in practice the pictures made with the Pan Cinor are consistently as sharp as those filmed with the best available fixed focal-length lenses. Also the pictures are uniform in exposure and sharp over the entire area of the screen—all the way out to the corners and at any distance.

"Another problem often encountered in the field is to find a position for the camera exactly where you want it. A

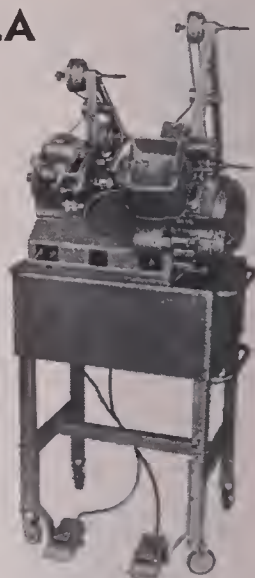
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river, street, fence, runway, or people may be in the way. With the Pan Cinor the camera can be placed almost any reasonable distance from the subject so long as it is the angle wanted, and the focal length of the lens changed to take the exact picture wanted. You don't have to zoom the lens in every case.

"At first the Pan Cinor lens seemed tremendous but we soon found out it is not heavy or awkward in any way, nor does it require any unusual care. We are using this lens almost exclusively for our work in 16mm television, industrial and promotion films, both black-and-white and color. The only difficulty we have found is resisting the temptation to zoom every shot."

It should be pointed out that the use of filters, polarizing screens and diffusion discs is the same with the Pan Cinor as with ordinary lenses. Series VIII filters may be used, and two close-up lenses are available—one for distances between 60 and 30 inches, and another having a focal length of .75mm for distances between 30 and 20 inches.

SIMPLIFIED SINGLE-FILM SYSTEM FOR 3-D

(Continued from Page 485)

for permanent in-the-booth installation and the other for mounting outside the booth in front of the projector port-hole, as shown in Fig 1. In use, the regular projector lens is eliminated and the projection lens of the Nord equipment is used. In projection, the film images are rotated 90°. Width and position of the sound track remains the same as for conventional or 2-D films.

The natural conclusion is to assume that by putting two images on a single frame of 35mm film, the images are reduced to just 1/2 that of a standard 2-D film frame. Roy Clapp explains why this isn't so:

"First we utilize the full silent picture frame area, minus the sound track area. By printing the images in the 1.75 to 1 wide-screen format, they fit perfectly into a single frame, as shown in Fig. 2, and the picture area used is just 7/8ths that of 1.75 to 1 pictures now printed in the conventional manner."

Acceptance of the Nord System must begin with the film producers themselves. Once the studios agree to print their 3-D features for Nord projection, it follows that an increasing number of theatres throughout the country will equip to show 3-D pictures by this method. The initial cost of equipment, said to be quite reasonable, will readily be recouped by consequent savings in booth operation, say Nord engineers.

Last month, Columbia Pictures Corporation became the first studio to com-

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plete arrangements to utilize the Nord System of single-strip 3-D film printing and projection. Following a series of meetings and demonstrations between Columbia Studio executives and Nord company representatives, the studio agreed to make immediately available to any exhibitor who so requests it prints in the Nord System of any of the

studio's films which have been made to date, or which are to be made in 3-D.

Roy Clapp, who invented the Nord System, has been an expert on stereoptics for 25 years. He holds numerous patents, and has applied for patents on his new process. Associates with him are Harry Rathner of Minneapolis, and Nathan Supak, also of Minneapolis.

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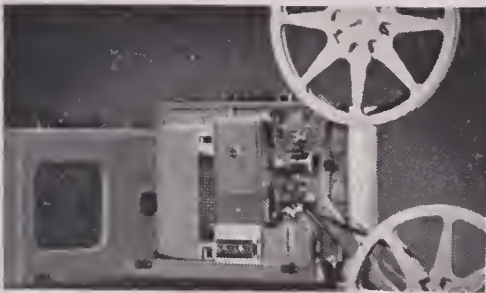
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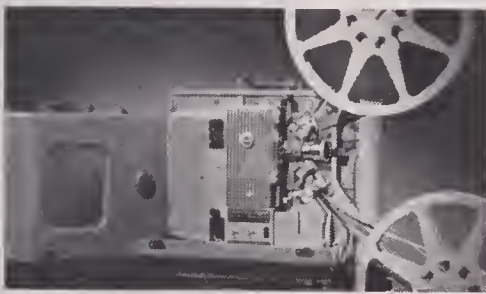
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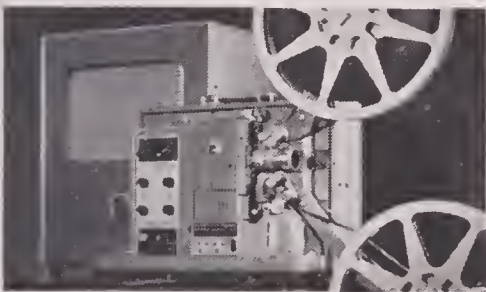
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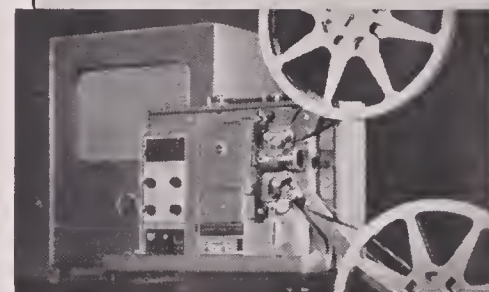
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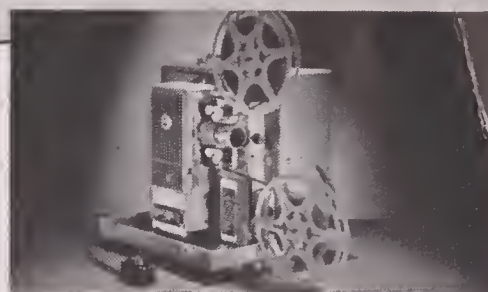
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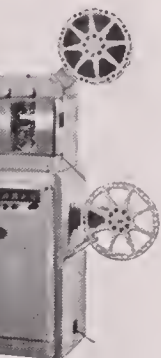
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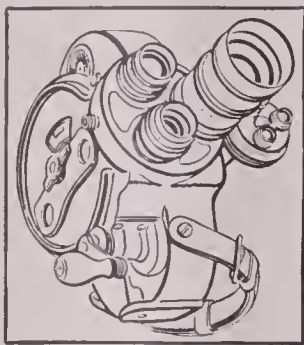
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In This Issue . . .

- Production Planning
 - The Story of Natural Vision 3-D
 - Extension Tubes In Cine Photography

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Preparing to "put the show on wheels."

Scene: Spacious Pasadena Winter Garden, home of TV's "Frosty Frolics." Stagehands arranging set for number in this "icetravaganza."



Du Pont 824B Film Puts "Live" Quality into "Kines" of Popular TV Ice Revue

Premiering as a summer replacement only two years ago, "Frosty Frolics," produced by Paramount's Station KTLA, Hollywood, Calif., today is one of the top TV "drawing cards" on the Coast. Television's only musical comedy on ice, the "Frolics" show has grown so popular that it's now being kinescoped for many West Coast and Southwest stations.

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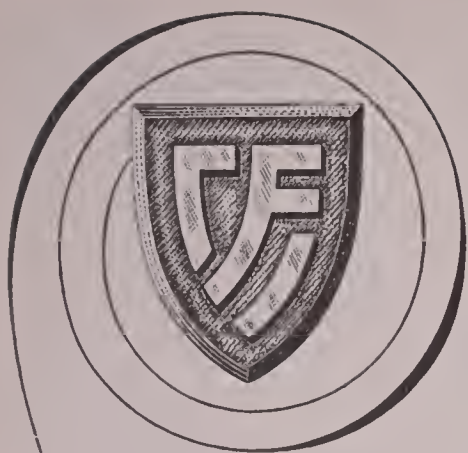
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PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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ON THE COVER

HIND SIGHT: Aluminum box, high on tail of DC-6B Mainliner, held the Cine Special camera which photographed striking views for "A World in a Week—California," new 16mm motion picture released by United Air Lines. Here Ed McGlone inserts camera in the box, from which it was operated by remote control inside the plane. Kirt Miller (left), United engineer, and Ted Cate, partner in Hollywood firm of Cate & McGlone which produced the unique color film, watch the proceedings.—United Air Lines photo.

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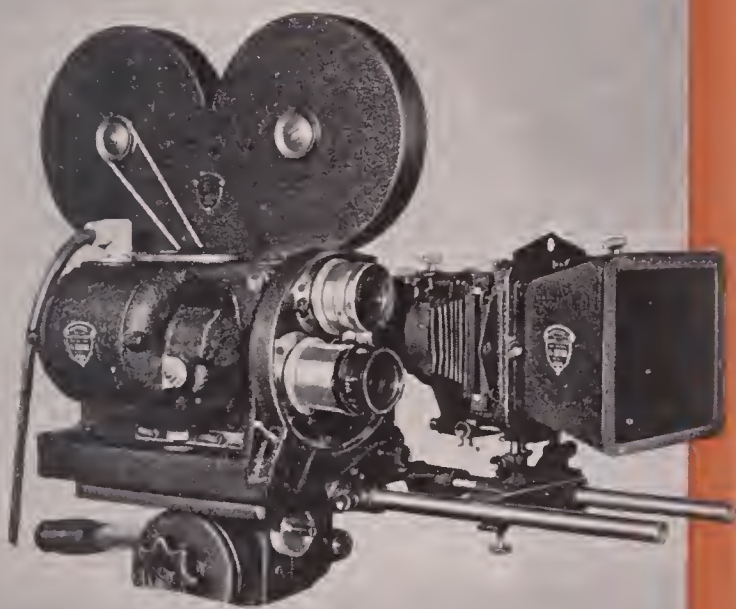
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Bulletin Board



DRAGNET'S Jack Webb, guest of the ASC last month, thanked the Society's members for guiding his organization in filming its popular television film series.



PHIL TANNURA (right) shows George Burns, also an ASC guest last month, the ASC's Wall of Fame where hang photos of Society members who have won "Oscars." Tannura films the B & A show.

WINTON HOCH, ASC, who earlier this year was signed by Cinerama to head its photographic research department, is currently directing the photography of Warner Brothers' "A Star Is Born," which brings Judy Garland back to the screen.

RALPH STAUB, ASC, has severed connections with Columbia Pictures and is now associated with comedian-producer Ken Murray in a new TV film project. For many years Staub headed Columbia's short subjects department.

HAROLD STINE, ASC, who has been photographing the "Superman" series of TV films, is currently photographing the new "Lassie" telepix series for Robert Maxwell Associates at Goldwyn Studios, in Hollywood.

MACK STENGLER, ASC, following windup of recent series of "Liberace" TV films for Guild Films, Inc., is currently photographing a new half-hour TV film series, "Life With Elizabeth," also produced by Guild.

MORE AND MORE major studios are developing motion picture cameras having horizontal film travel for making wide-screen movies without need for special anamorphic lenses. Although MGM was first to develop such a camera, Paramount is first studio to go into actual production with one.

TECHNICOLOR CORP., at same time, has geared its labs to handle the film from "horizontal" cameras. Company recently developed a new

and improved Technicolor dye transfer color motion picture release print having greatly increased definition and freedom from grain.

THIS MONTH, Hollywood celebrates the 50th Anniversary of its motion picture industry. At the same time, *American Cinematographer* celebrates its 33rd Anniversary with this month's issue.

ARNOLD & RICHTER, manufacturers of the Arriflex camera, new models of which will be exhibited at the ASC's November meeting, have developed a single-system magnetic sound model, two of which are presently in use in Africa, according to Kling Photo Supply Corp.

GENERAL TIGHTENING up of production in the major studios in Hollywood has resulted in a reduction of feature films made this year compared to 1952. As of the end of October, according to the trade paper *Daily Variety*, Allied Artists started 20 this year, 25 in 1952; MGM has shot 22, this year against a total of 36 last year; Paramount, which shot 17 last year, has started only 10 this year; Republic, with a total of 15 pictures for 1952, are only two behind this figure; Universal-International has turned out 13 so far this year as against 15 for same period in 1952; 20th Century-Fox, which had a total of 23 pictures in the can on October 30th last year, had completed only 17 when the studio closed down production four weeks ago. Warner Brothers show 13 this year against 15 for same date last year.

MARK ARMISTEAD, ASC, head of camera rental agency bearing his name and situated on the Samuel Goldwyn lot in Hollywood, has purchased the remaining Natural Vision 3-D camera equipment from Milton Gunzberg. Included in the purchase are five 3-D camera blimps and four Mitchell cameras. This gives Armistead a total of five complete 3-D camera units for rental purposes.

Natural Vision's disposal of cameras is result of company bowing out of the camera rental business. Move now makes Armistead leading source of rental 3-D cameras on west coast.



R. D. PESTONJI, (left) president of Far East Films, Ltd., Bangkok, Siam, was a Hollywood visitor last month. During his visit to the ASC clubhouse, Tom Tutwiler, who photographed a color production for Mr. Pestonji two years ago, showed him an old museum piece—an early day Pathe camera.

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COLLAPSIBLE 3-WHEEL DOLLY

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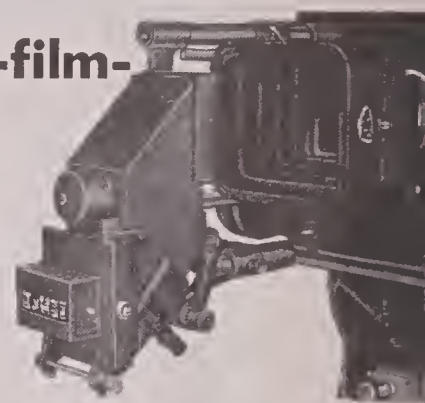
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Pays for itself in production savings on the set. A New Development! Eliminates clap stick synch and slate on set. Mounts on double arm bracket to work with BNC, NC, Standard, 16mm Mitchell and all types of blimps and Geared Head. Interlocks with Sound Recorder.

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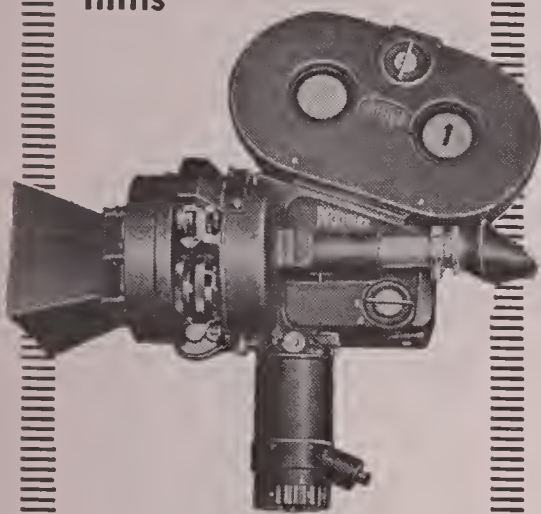
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CLOSEUPS

Notes and
editorial comment

The first entry blank to be received in American Cinematographer's forthcoming 3-D Film Festival for 16mm stereo motion pictures was from J. S. Frieze of London, England. The first film entry to be received was from Mr. and Mrs. Lloyd N. Sanford of San Diego, Calif.

If letters of inquiry received to date are any criterion, foreign entries will equal those from within the United States.

Because of the unusual interest in the festival emanating from such countries as South Africa, Hawaii, Mexico, England, and Australia, the Festival committee has set back the deadline date for entries from December 1st to December 15th.

The Festival showing of films is tentatively scheduled for the ASC Clubhouse in Hollywood in January. Members of the American Society of Cinematographers who have photographed 3-D pictures in the major studios will make up the panel of jurors who will evaluate the film entries and make the awards.

There is an entry blank on page 547 of this issue for readers who are interested in submitting films for the Festival screenings. Both amateurs and professional 16mm film makers are invited to participate.

★

On the day we went to press with this issue, the National Broadcasting Company in its new studios in Burbank, California, unveiled for the film and TV industry and the press its new compatible color television system. More about this achievement will appear in our next issue. What we want especially to mention at this time is the significant announcement made at that meeting by David Sarnoff, Chairman of the Board, Radio Corporation of America. Said Mr. Sarnoff: "Now I will let you in on a secret. Our men already have achieved recording of color as well as black-and-white television programs on magnetic tape."

In announcing the achievement of video tape recording, Mr. Sarnoff said that electronic motion pictures and even home movie recordings on tape are future possibilities that will stem from this development. He described it as holding great promise for the motion picture industry. Recording and reproducing motion pictures, with no intermediate steps such as film processing,

will do away with all chemical processing. Pictures may be viewed the instant they are taken. There will be no need to wait for the next day or days to see the "rushes."

Until the NBC-RCA announcement, the Bing Crosby Enterprises developments in this field have been the only ones to come to the general attention of the film industry. Now, with RCA solidly behind the development of video film recording, its practical use in motion picture production is probably not too far away.

Following the Sarnoff announcement, many cinematographers and other technicians in the industry fell to speculating on the future of the motion picture cameraman, once electronic picture recording becomes a reality in Hollywood.

It is safe to say that the motion pictures of that era will depend on artistic lighting, good composition and skillful camera handling as do pictures today. The only thing that will be different will be the camera itself.

★

One cannot help noticing these days the steadily improving quality of both the photography and transmission of TV film shows. For this, considerable credit is due both the directors of photography and the engineering fraternity of the television networks. Both have worked steadily toward a common goal—that of improving the picture quality of film shows reaching home receivers. We refer here to film programs made especially for television, not old theatrical films.

★

Progress toward the development of television studio equipment designed to make possible the airing of filmed programs and especially filmed commercials with all the quality of "live" pickups is evident in still another recently announced accomplishment of Radio Corporation of America engineers. A new RCA television film camera (which picks up the projected film image at the TV station and sends it out over the air), expected to go into production early next year, will provide picture quality in TV films comparable to live pickup performance, according to RCA engineers.

Making this possible is a new, smaller TV camera tube, three times more sensitive than those used heretofore.

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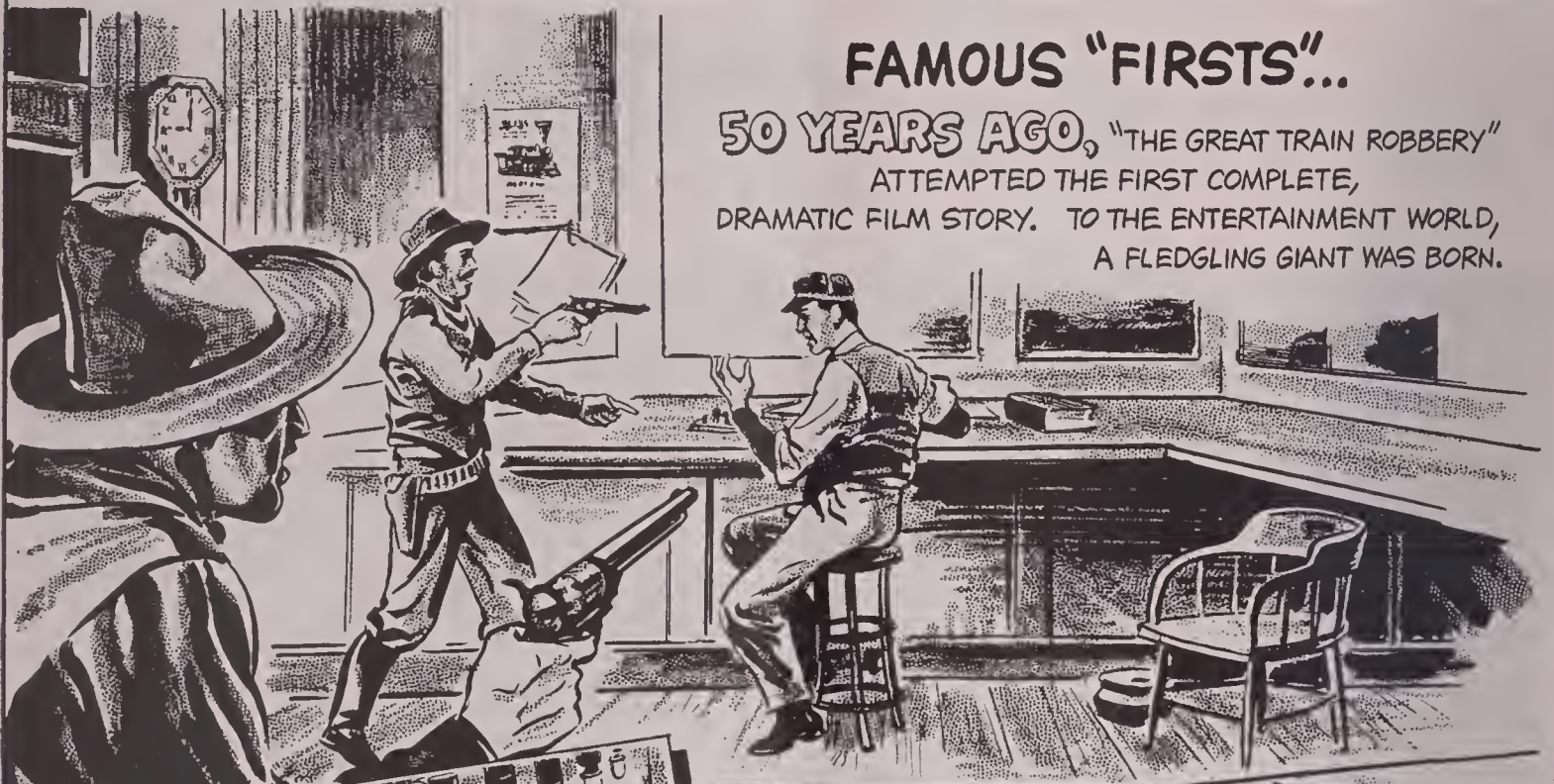
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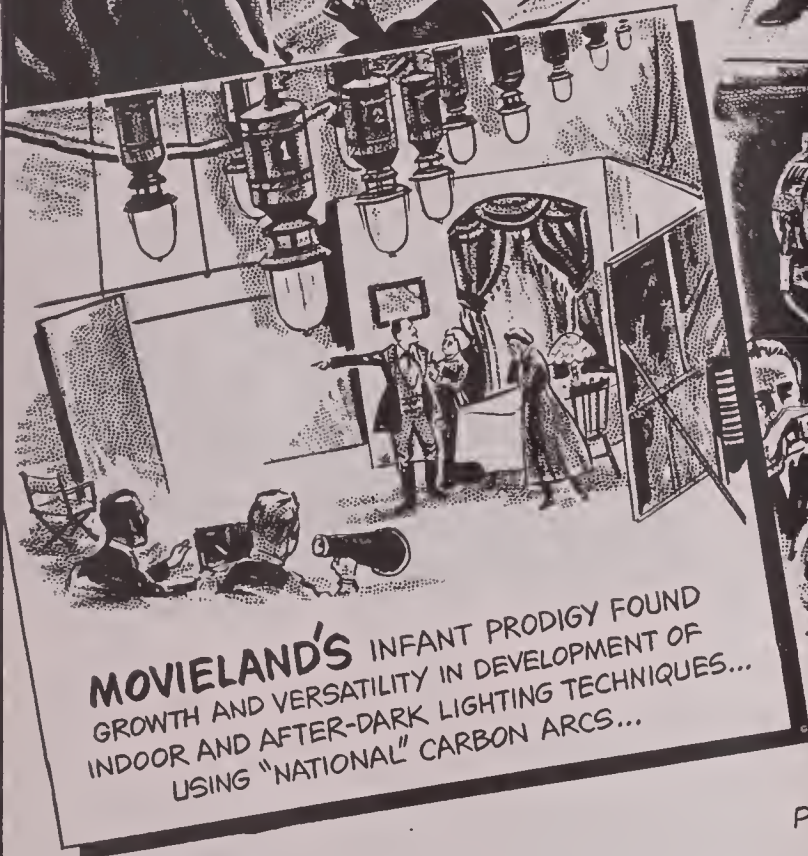
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Motor drive your Cine Special with confidence! Tachometer is mounted in clear view of operator. Calibrated from 16 to 64 frames per second. Definite RED marking for 24 fps. Electrical governor adjusts speeds. Steady operation at all speeds. No adapters needed. Motor coupling attaches to camera and couples to motor. Spring steel drive arm shears if film jam occurs. Easily replaced.

SYNCHRONOUS MOTOR DRIVE—110 Volt AC
—Single phase, 60 Cycle.

Runs in perfect synchronization with either 16mm or 35mm Sound Recorders. Mounting platform permits removal of magazine while camera remains mounted on motor. Spring steel drive fin coupling prevents damage if film jam occurs.

Knurled knob on armature permits rotating for threading. "On-Off" switch in base. Platform base threaded for 1/4" or 3/8" tripod tie-down screw. Rubber covered power cable with plugs included.

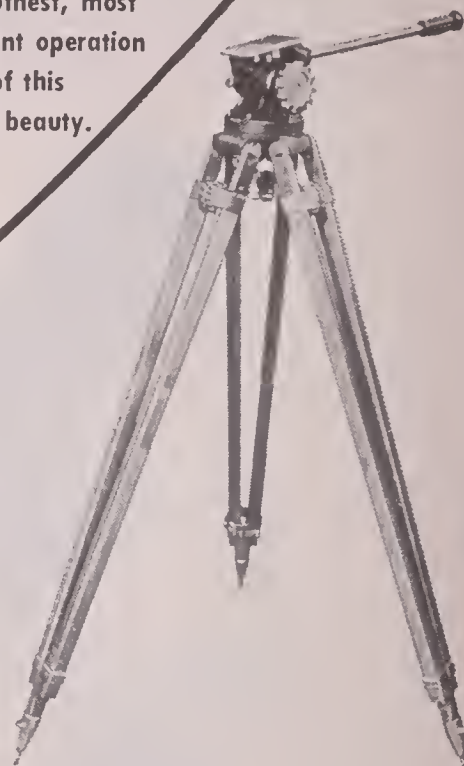


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PROFESSIONAL JUNIOR TRIPOD—Friction Type

Handles all 16mm cameras, with or without motor. Also 35mm DeVry, B & H Eyemo with and without motor, and 400' magazines. Tripod base interchangeable with Professional Junior gear drive head. "Baby" tripod base and "Hi-Hat" base available.



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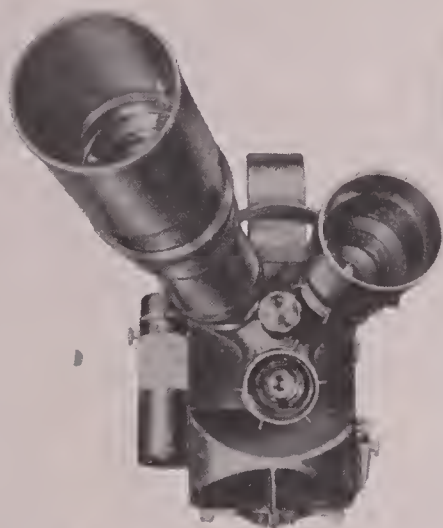
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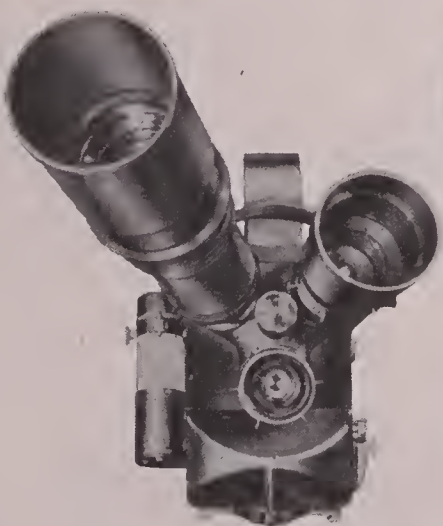
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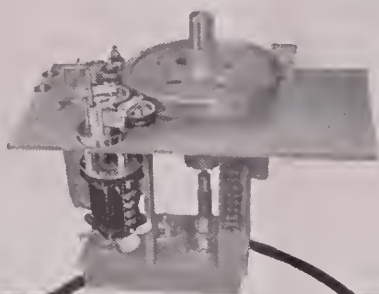
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Fairchild Model 126 Professional Tape Recorder (below) with patented Syncroll Drive and Pic-Sync Attachment (right) installed within console.



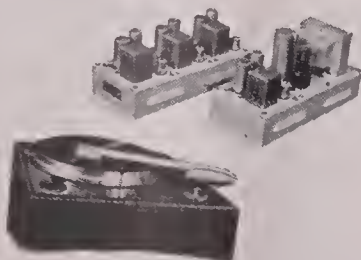
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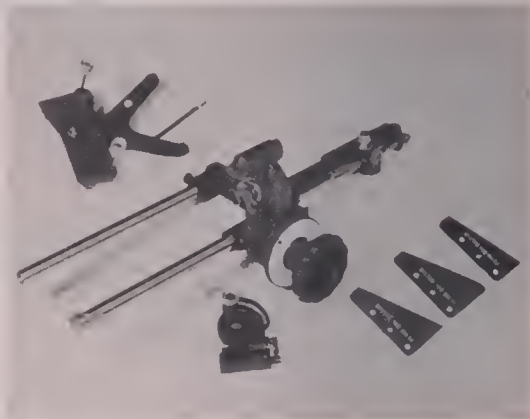
FAIRCHILD RECORDING EQUIPMENT

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What's New...

In Equipment, Accessories, Services

Follow Focus Attachment— The new follow focus attachment for NC. Standard and 16mm Mitchell cameras is designed for use in action shots moving toward or away from the camera. It as-



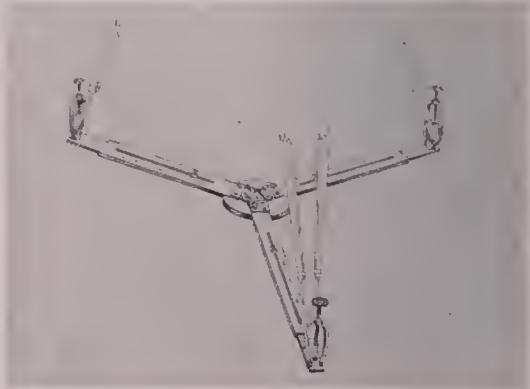
tures full control of picture framing and lens focusing, particularly at close, critical ranges.

Once the follow-focus attachment is fastened to the camera, all follow-focus control is accomplished through the use of one focus control knob, which saves considerable production time.

The attachment is supplied in kit form, is easy to install and remove, and does not interfere with use of all standard Mitchell camera accessories. Attachment is supplied complete with bracket for attaching to matte box.

Full information and price is available by writing Mitchell Camera Corp., 666 West Harvard St., Glendale 4, Calif.

Leg-Lok Triangle—Florman & Babb, 70 West 45th Street, New York, N. Y., announce the F & B Leg-Lok camera triangle which features special clamps that prevent tripod legs jumping out of



place when triangle is moved. Camera-mounted tripod and triangle may be moved easily by one man alone. Still another feature is the large engraved numerals on each extendable leg of the triangle for quick and accurate levelling. Of sturdy aluminum construction. Leg-

Lok Triangles are easy to transport, and may be clamped on roof of station wagon.

Built-in Filters — Paillard Products, Inc., 100 Sixth Ave., New York 13, N. Y., announce an interesting lens for 8mm cine cameras tradenamed "Filtin." As the name suggests, this is a lens having built-in filters. The half-inch f/2.8 lens has one yellow and one red



filter for B&W films, and one "Day-light" conversion filter and one "Sky-light" filter for color films. Filters are mounted inside the lens housing on a turret. Between each filter there is an opening for use when shooting without a filter is desired. Lens, which has click-stops and depth-of-field scale, retails for about \$75.00. Deliveries start after January 1st.



New Cine Camera Lens — Bell & Howell Co., Chicago, Ill., announce a new 1" f/1.9 Taylor & Hobson lens for 16mm cine cameras. New anastigmat lens replaces previous super comat lens of same size, and will be standard equipment on all Bell & Howell 16mm cameras ordered with 1" f/1.9 lenses. Features include built-in sunshade, and depth-of-field scale. Price is \$86.95, including F-X tax.

CinemaScope Splicer — Neumade Products Corp., 330 W. 42nd St., New York, N. Y. announces the Neuscope splicer, especially developed for use with CinemaScope film. Until now, splicing CinemaScope film has meant a double operation—removing film from splicer plate in midst of making the splice, turning it over and scraping the sound tracks from the back.

Kilpitt KILAR TELE-LENSES & ACCESSORIES



400mm (16") f5.6 Fern-Kilar
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For the BEST in Movie Tele-Photography

Cinematography demands the best in optical performance. Long shots, medium shots, close-ups . . . each must be equally sharp and clear as if taken with one lens. One scene marred by poor quality dooms an entire sequence. That is why so many of the leading professional cinematographers rely on Kilar lenses.

Kilar lenses are highly color corrected. They are entirely free from haze or flare, even at widest apertures, and they are unsurpassed for critical sharpness and definition. Extremely lightweight, they are ideal for portable equipment, and are easy to handle and interchange.

Kilar lenses have the added advantage of flexibility and economy. By means of simple screw-on adapters, one lens may be used on several movie cameras, 16mm and 35mm, and on 35mm still cameras. Adapters are available for standard 'C' mounts and for the Arriflex. Custom-built adapters and mounts are also available for others. Information and prices on request.

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(Complete with Lens Shade-Filter Holder):

90mm (3 1/4") f3.5 Kilar	\$ 75.00*
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300mm (12") f5.6 Tele-Kilar	130.00*
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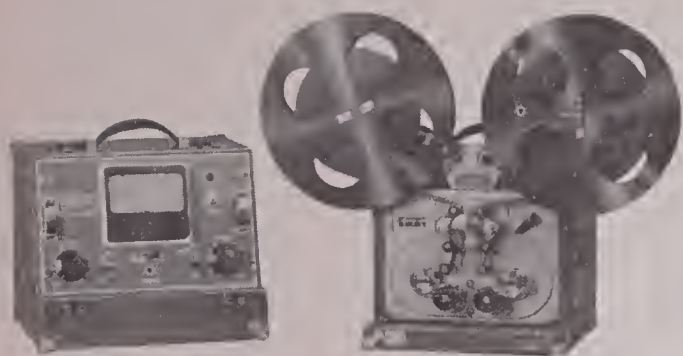
135 mm



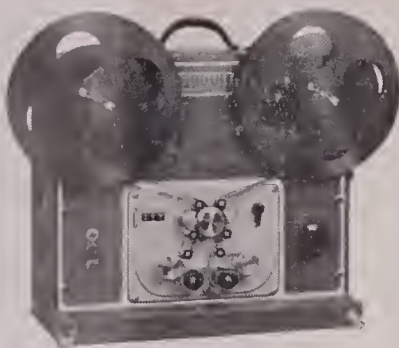
90 mm

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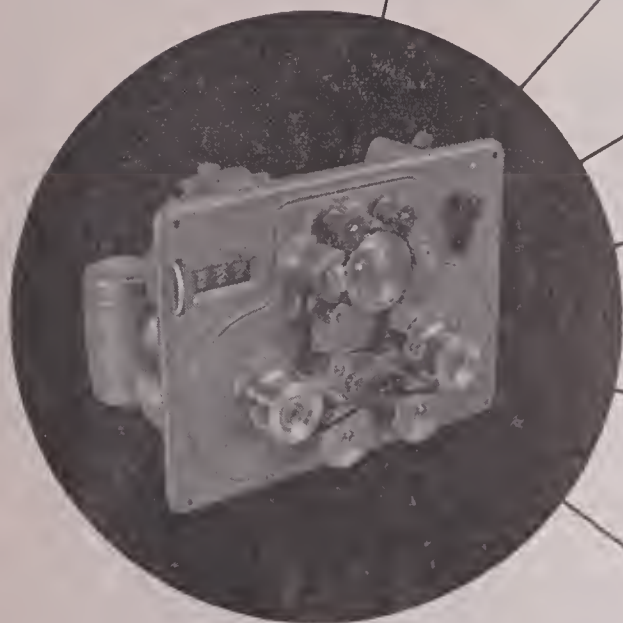
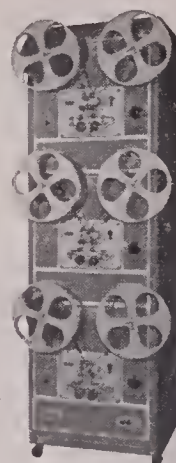
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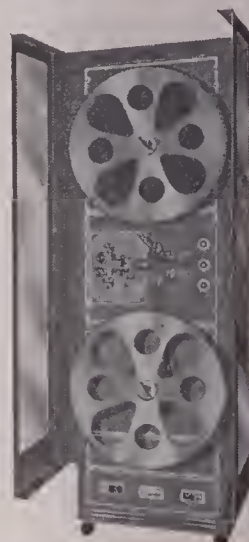
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WITH PLAYBACK PRE-AMPLIFIERS



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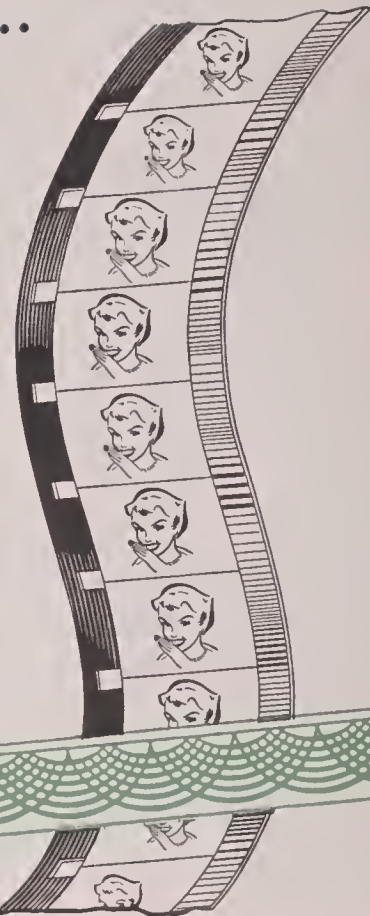
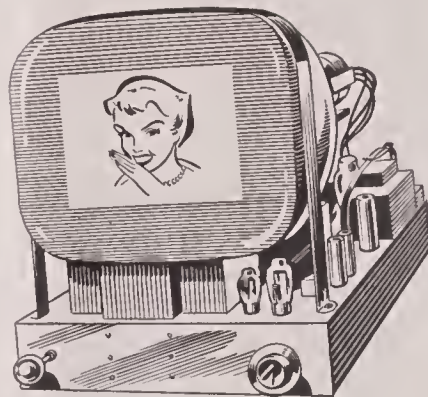
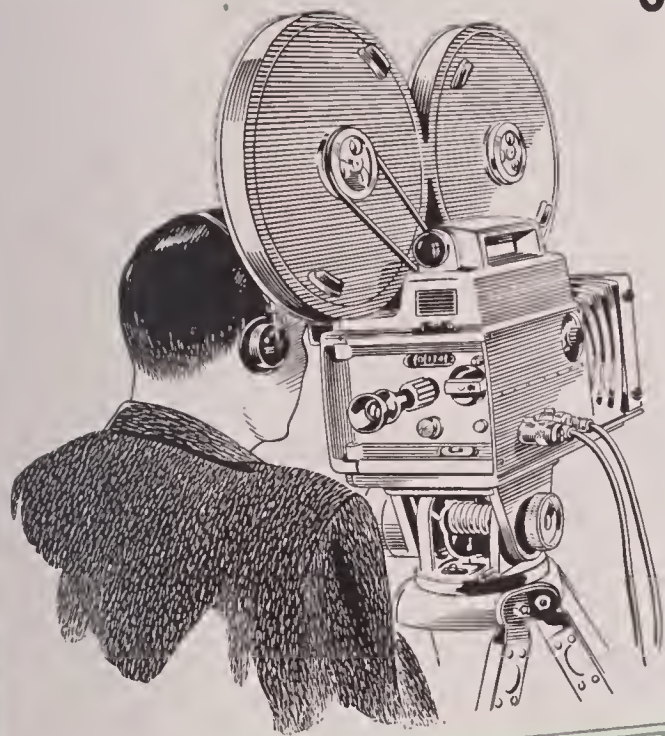
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...designed for Kinescope Recording...and shoots regular Live Action 16mm Sound-On-Film Talking-Pictures without any Camera modification or change in the "TV-T" Shutter! The Auricon "Super 1200" Camera can Kinescope Record a continuous 30 minute show using 1200 foot film magazines. The "TV-T" Recording Shutter (Patent applied for March, 1949) works equally well with negative-positive or reversal film. This Dual-Purpose "TV-T" Shutter is also available for the "Auricon-Pro" and "Cine-Voice" Cameras. Write today for information and prices.

Auricon Cameras with "TV-T" Shutter are sold...

- ① Without sound for "TV-T" Kinescope Recording of picture only.
- ② With Single-System Sound-On-Film for "TV-T" Kinescope Recording of picture and sound-track on same film at same time.
- ③ For Variable-Area OR Variable-Density Sound-On-Film "TV-T" Recording.

Auricon 50 ft. Kinescope "TV-T" Demonstration Films are available on loan to TV Station Managers and TV Film Producers. Please request on your letterhead.

USE AURICON "TV-T" KINESCOPES FOR:

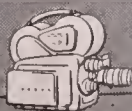
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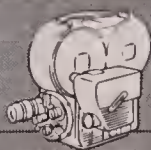
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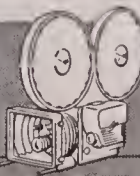
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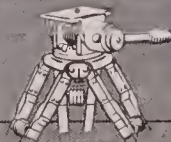
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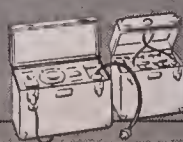
AURICON-PRO



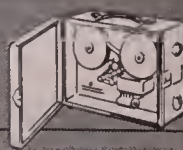
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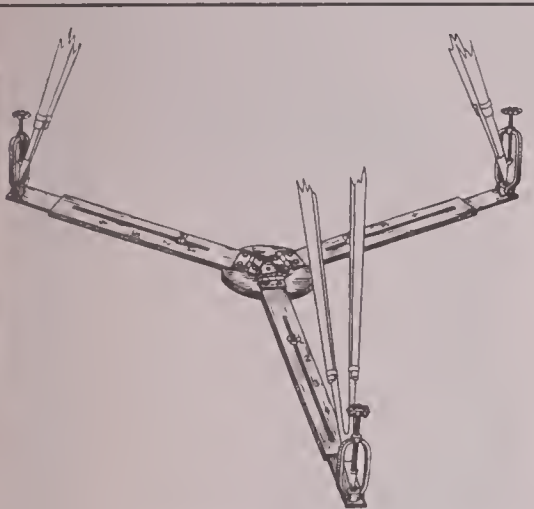
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WITH LEG-LOK CLAMPS AND REINFORCED CENTER CASTING



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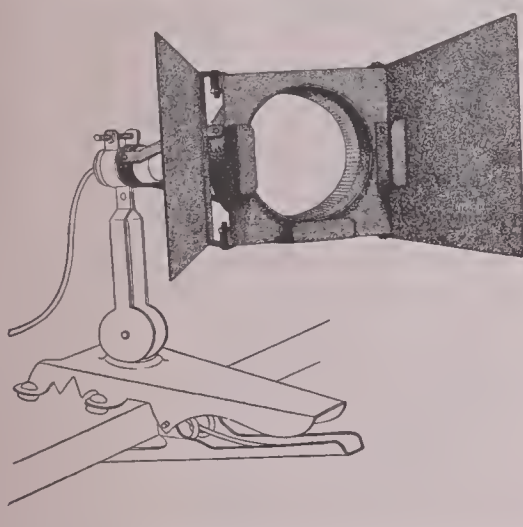
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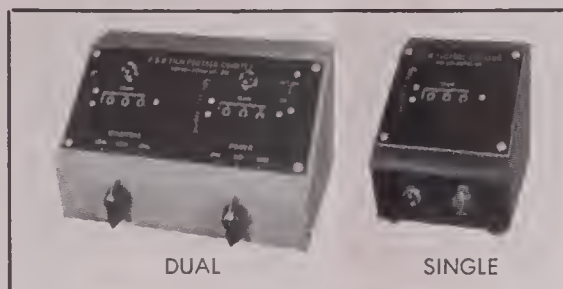
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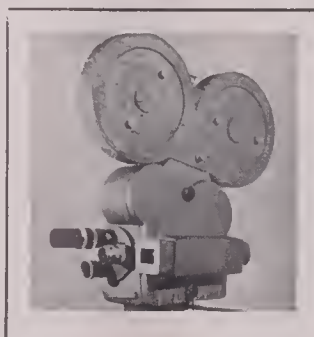
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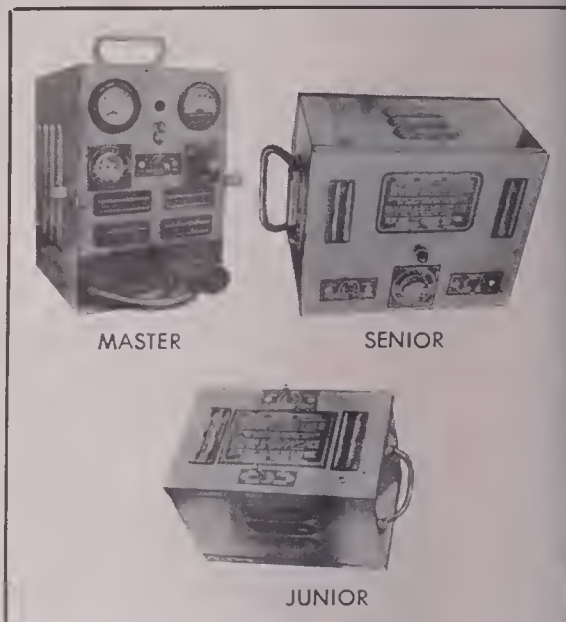


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High powered studio illumination from ordinary house current.

OPERATION: The Colortran is an electrical device which increases the efficiency of ordinary 110-115 volt bulbs by 180%. The PAR 38 150w. bulb, which is recommended here, will give MORE photographic light than a #4 photoflood or TWICE the light of a 500-750 w. spotlight.

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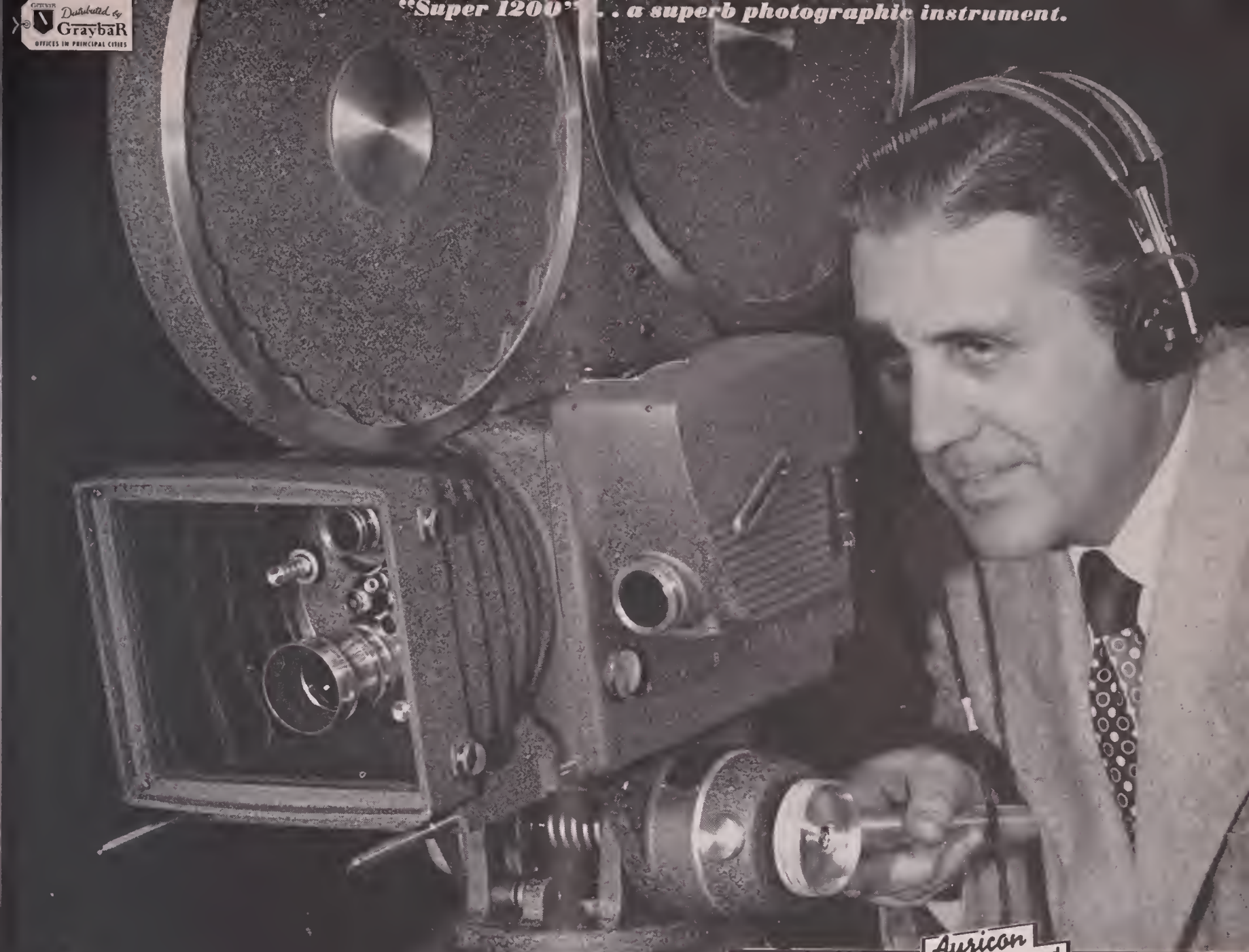
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During picture exposure, your film runs through the New Auricon "Super 1200" Film-Gate with the light-sensitive film emulsion accurately positioned on jewel-hard Sapphire surfaces, an exclusive Berndt-Bach feature (U.S. Patent No. 2,506,765). This polished Sapphire Film-Gate is guaranteed frictionless and wear-proof for in-focus and scratch-free pictures, regardless of how much film you run through the camera!

Built-in Electric Camera Heater with automatic Thermostat-Control, provides reliable cold-weather Camera operation.

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Two independent Finder systems (in addition to Reflex Ground-Glass Focussing through the Camera lens); a brilliant upright-image Studio Finder, plus a "Rifle-Scope" precision-matched Telephoto Finder.

Records "rock-steady" picture and High Fidelity Optical Sound-Track on same film at same time, with "whisper-quiet" Camera & Sound Mechanism synchronously driven by precision-machined Nylon gears.

400 and 1200 ft. film Magazines available. Up to 33 minutes continuous filming.

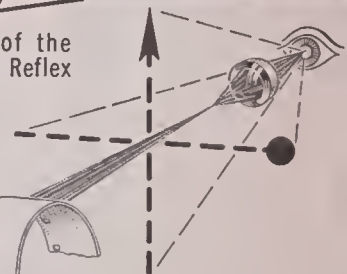
"Super 1200" is self-Blimped for completely quiet studio use.

Now priced from \$4,652.15 complete for sound-on-film; \$3,755.65 without sound; choice of "C" Mount lenses and Carrying Cases extra.

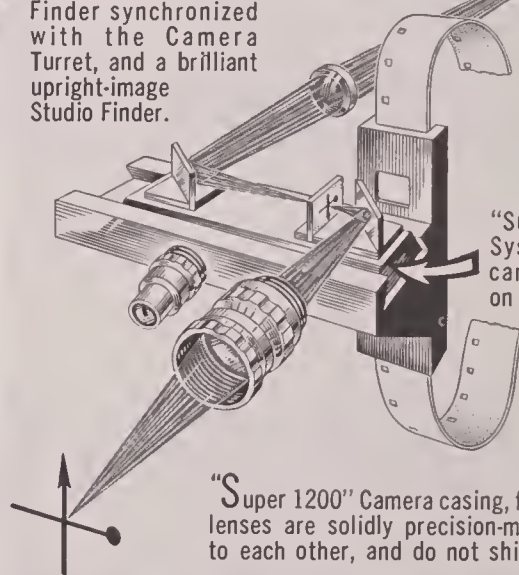
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Auricon
Hollywood

Shown here is a cutaway view of the "Super 1200" Optical System for Reflex Ground-Glass Focussing through the Camera lens. Also provided are two other finder systems, a telephoto-lens "Rifle-Scope" Finder synchronized with the Camera Turret, and a brilliant upright-image Studio Finder.



Dove-Tail Optical Carriage is only moving part of "Super 1200" Optical System. There is no camera-weight shift on tripod when moving from focus to film-shooting position.



"Super 1200" Camera casing, film gate and shooting lenses are solidly precision-mounted with relation to each other, and do not shift to focus or shoot.

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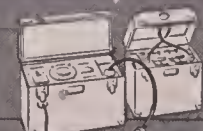
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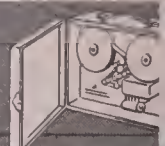
SUPER 1200
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PORTABLE POWER UNIT
\$269.50



SOUND RECORD
\$1149.50



COPTER ARRIVES—Lying flat on his back, cameraman films the arrival of the helicopter that will take him to hospital.



SHOOTING FROM COPTER POD—Cameraman, sitting in the evacuation pod of the helicopter, films from air as machine takes off for hospital.



FOR SUBJECTIVE EFFECT—Most scenes were recorded as seen through the eyes of the player, with the camera set low and shooting in close.



BIG BLAST!—Cameraman Larsen and Lewis record a "close" hit, as seen through eyes of actor, as a light charge explosive is set off.

With A Script, A Plot And A Star...

How Navy-trained combat cameramen of the Pacific Fleet, using a minimum of equipment, turn out training and informational films in the best professional manner.

By CAPT. JACK LEWIS, U.S.M.C.R.



SMALL CREW—Shooting a scene for "I Am A Casualty" which the Navy's Pacific Fleet camera crew photographed in Korea.

KOREA IS ROUGHLY 8,000 miles from Hollywood. It seemed a lot further when the shooting was on.

A group of Navy-trained combat cameramen wearing steel helmets instead of berets and armed with a minimum of equipment proved, however, that with proper planning and careful but imaginative shooting, production work can be carried out right in the front lines and the product can be entertaining as well as informative film.

The Pacific Fleet's Combat Camera Unit made the initial landing at Inchon, filmed ships being blown up in Wonsan harbor and took part in the deadly withdrawal from the Chosen Reservoir in North Korea long before I became associated with it. Men from the unit worked with Admiral John Ford in obtaining footage for the Republic release. "This is Korea," and furnished additional footage for a dozen other films based upon the Korean War, including "Flat Top," "Battle Zone" and "Torpedo Alley." Background footage for "The Caine Mutiny" also was gleaned from the camera work of this crew.

It was when plans were being made to go into studio-type production "with a script, a plot and a star" that I was ordered from the 1st Marine Aircraft Wing to the camera unit as a writer. I had written horse operas for several Hollywood producers before being recalled to active duty, but I failed to see how this was going to benefit the Marine Corps. But Navy Lieutenant R. L. Tomlinson, who headed the Far Eastern unit at that time, had the answer to that.

"Write them like you would for Gene Autry," he instructed. "Try for twenty-

seven minutes; use whatever stock we have on record; aim for quickie production, and keep them moving." The fact that I had never written for Autry didn't sway his decision.

The first three scripts were turned out in as many weeks. The first, titled "Air Strike," dealt with a pilot who had completed his aerial missions and was sent to the front to act as a forward air con-

troller—an officer who calls in air strikes—for the First Marine Division. The script was simply written and included as much stock as could be fitted in from the "color" that already had been shot by the unit in more than two years of war. The remainder was shot at headquarters of Marine Air Group 12 and in the actual lines of the Marine Division. All work was done in 35mm Ansco Color with a pair of Eyemos, one loaded with 100 foot rolls for use where bulky equipment might prove risky, the other rigged for 400-foot rolls.

In this first effort, the crew suffered its first casualty while shooting aboard the USS Bataan. Chief Richard B. "Moose" Hargreaves, USN, was directing his crew in obtaining required shots of Marine Corsairs making carrier landings, when an aerial rocket broke loose from an incoming aircraft. Skipping across the deck, the missile exploded and a piece of shrapnel tore into the chief's shoulder. A quick thinking officer was credited with saving Moose's life by halting the blood flow until a surgeon could reach the scene.

Star of this opus was Major William D. Smart, a pilot who only two weeks before had been shot down behind enemy lines and captured by two Red soldiers. He was held for an hour before effecting an escape and being picked up by a helicopter.

(Continued on Page 556)

AIR STRIKE—First "production-type" film to be made through joint efforts of Navy Combat Camera Group and First Marine Air Wing's Public Information Section dealt with work of men assigned to direct planes in close air support strikes against enemy.





THE MEN responsible for Natural Vision and the camera that started Hollywood producing 3-D films. At left is Milton Gunzberg, president of Natural Vision Corp. Right foreground is Dr. Julian Gunzberg, vice-president of the company, and (to his right) O. S. "Buddy" Bryhn who built the first Natural Vision camera mount.

The Story of Natural Vision

A desire to film a story about "hot rods" led to the development of Hollywood's first practical 3-D camera and filming system, started the trend to 3-D movies.

By DR. JULIAN GUNZBERG, M. D.

NATURAL VISION is a stereoscopic motion picture system born in 1950 from the efforts of a motion picture writer to find the media that would adequately tell the story that he had just written. The writer was my brother, Milton L. Gunzburg, and the story he had written and wanted to produce was called "Sweet Chariot." It was a sympathetic story about a modern boy and his car. It was the story of boys working on automobiles, experimenting with motors and body designs, of driving these automobiles in competition, and of the organizations that make these competitions safe. The story in itself would make an exciting motion picture, but realism in photography of these

beautiful cars and their engines was essential, and the search for this realism led us to stereoscopic photography.

It started with test shots of the cars and their motors taken in normal 2-D with a standard professional 35mm Mitchell camera. With my brother, I saw these test scenes, and the photography fell short of realism. I could sense how disappointed he was, for without vivid photography of the engines and the automotive parts, the story would lose much of its value.

Here, I may mention briefly where I come into this story. I am an ophthalmologist, that is, an M.D. especially trained in eye surgery. I also have been for years a serious amateur still photo-

grapher, and one of the latest cameras of which I became enamored was a still 35mm stereo camera. I suggested to Milton that we might photograph some of the cars and their engines with this camera, and this we proceeded to do. The results were startling. The pictures were beautiful and the motors stood out in vivid relief. They were so real, you felt that you could touch them.

With characteristic zeal and drive, Milton began his investigation of the possibility of making a feature-length picture in stereoscopic photography. The initial investigations were not too encouraging. True stereo motion pictures had been made, but they were short subjects only, novelties in character, and could not be relied upon to give data on whether a feature length stereo picture would be practical.

As my brother's investigation progressed, he asked himself these questions:

"Would stereo add greatly to the cost of making a motion picture?"

"Could stereo be added to present-day motion picture techniques, from the taking to the editing, without basically changing these methods?"

"Could stereo be made consistent throughout a picture without distortions in perspective or size?"

"Could a stereo picture be visually comfortable for the average or majority of viewers?" As an eye physician, I was vitally interested in this problem: "Would the audience wear glasses?" At the present time, the only practical system for stereo movies is the Polaroid



END VIEW of the Natural Vision 3-D motion picture camera in blimp. Unit consists of two Standard Mitchell 35mm NC cameras mounted opposed, with lenses picking up image from angular mirrors.

system which requires the viewer to wear special viewing glasses.

To answer these, and a multitude of other questions, a thorough study into stereo picture photography was launched—past methods were reviewed and analyzed, motion picture technical people were consulted. My background in photography and my knowledge of eye physiology and optics were to prove valuable.

Up to the time Milton began his work, the accepted motion picture stereo methods were largely adapted from the still stereo techniques. These were evolved from the stereo drawings of Wheatstone and Brewster in the 1850's and 1860's, and from the stereo pictures which reached their heights around 1900. Basically these pictures were taken with two cameras shooting straight ahead. The optical axes of the two cameras were parallel to each other, and to control the stereo perspective and the separation, mathematical formulae were worked out in the interaxial spacing of these two cameras.

Simply stated, the cameras were placed closer together for closeup shots, and wider apart for distance shots. For viewing these pictures in the stereoscope, this system worked beautifully. Quite naturally then, the early 3-D pioneers, in adapting these "still" stereo picture techniques to the motion picture, chose to carry over the concept of the variable interaxial, with, of course, certain modifications. These modifications were due to change in viewing systems. In the stereoscope, the separation of the two eye images was comparative-

ly simple. Each eye saw its separate picture, and these pictures were easily adjustable to the eye differences of the different viewers. In motion picture projection, the right eye and left eye pictures had to be separated by filters—at first with colors (as the red-green) and later by polarization. This in turn required the viewer to wear special glasses so that each eye saw the picture intended for it and rejected the picture for the opposite eye. This meant that camera matching and line-up had to be far more accurate, and more so because of magnification; and projection had to be meticulous, for the viewer could not control the line-up.

In adapting "still" stereo methods to motion pictures, the early 3-D pioneers had once again to work out mathematical formulae, adding the factors of the distance of the viewer from the screen, the size of the screen, the magnification of the picture. Then, of course, adding the taking factors—the focal length of the lenses, the distance of the camera from the scene, etc.

These variables were worked out in mathematical terms of stereo perspective and separation, and the correct distance between the two cameras was determined.

Later the concept of the stereo window was developed. Simply, this stated that the projection screen was as a window; if one camera was "toed in," the foreground separations would be in front of the window and hence produce the stereo effect of foreground relief; and the background separations in back of the window, and hence produce the

effect of background relief. These separations were therefore less the closer to the screen window, and further apart when away from the window. The stereo effect desired could therefore be calculated, and these variable factors were again added to the other variables in determining the interaxial distances.

With this interaxial system, each scene had to be calculated mathematically, and the camera set-ups could not be readily changed during the filming of the scene. Although we appreciated the ingenious developments of earlier workers in evolving this interaxial system for controlling the many factors involved, we could not conceive that this system could be applied to the making of a feature-length motion picture without basically changing established motion picture methods in writing, production, scene design, photography and editing.

These were some of the reasons why we felt the previous variable interaxial system would not work:

(1) Camera engineers with long experience in the industry convinced us that in order to maintain the tolerances necessary to the matching of the two images, the cameras and their optical axes, as well as the film planes themselves, would have to be in absolute alignment to each other. If the cameras were to be moved in relation to each

(Continued on Page 554)



FRONT VIEW of blimped Natural Vision 3-D camera. Right and left doors afford access to motor and to camera mechanism for threading film. Camera operates on tripod, dolly or crane. Besides center viewfinder, there is a finder on each camera for lining up scene for 3-D.



VIEW of Natural Vision 3-D camera with blimp removed. Here may be seen the two divergent mirrors in center and the front element of the central viewfinder set between them. Camera features a fixed interaxial and variable parallax control.



SHOOTING SCENES that later were incorporated in opening sequences of "Man With A Thousand Hands" in the New York studios of Movietone News are Jerry Hirschfeld, cameraman and Anthony Brooke, assistant. In front of camera is actor Raymond Massey, who narrated picture.

'Man With A Thousand Hands'

How A Canadian motion picture company filmed the epic story of British Columbia's biggest construction project for International Harvester.

WHEN THE CANADIAN coastal steamer "Princess Norah" tied up at her berth in Kemano, British Columbia last August, she discharged an unusual assortment of cargo and passengers at the tiny frontier camp. Unloaded under the supervision of a group of men from Associated Screen News, Ltd., Canadian film producing company, was a miscellany of motion picture gear—cameras, tripods, lighting equipment, cables,

slate boards—and the hundred-and-one items necessary to the production of a motion picture.

The arrival of Associated's movie crew at Kemano was a natural sequel to a preliminary survey trip which had been undertaken earlier to the giant Kitimat project of the Aluminum Company of Canada, Limited. Here a pictorial record was to be photographed which would show the part played by

International Harvester heavy duty equipment in bringing the Kitimat project to fruition. International Harvester Company's role was to furnish hundreds of crawler tractors, power units and motor trucks to the various contracting companies engaged in the project. The picture was to be filmed in the primitive tangle of ocean inlets and mountain peaks that is Canada's Pacific Coast; where civilization's only toe-hold until now was an occasional cluster of logger's cabins and cannery settlements hugging the shorelines.

Besides International Harvester representatives, the pre-filming survey party included Charles A. "Cap" Palmer, an executive producer with Metro-Goldwyn-Mayer studios in Hollywood, and Jack McDougall, Associated Screen News film director.

Now, following a second survey trip which culminated in preparation of the shooting script, the ASN company was ready to start filming. Producer Palmer had visualized a script that was to be entirely new in concept, that was to avoid the beaten track taken in so many earlier sponsored films on a similar theme. The picture had to be concerned with more than just this one construction job, tremendous as it was. It had to be concerned with more than aluminum, important though that strategic material might be. The goal of this production, then, was to capture the epic quality of Universal importance.

Years, earlier, the Kitimat project, or any others like it, would have been impossible to undertake. It would have been impossible to crowd enough men into the space available to pierce the mountains of solid rock, to move the millions of tons of earth, and to bridge the innumerable chasms and gorges. But now the new tools created by man had given him a new mastery over Nature, opening up new horizons and opportunities, and giving him the weapons with which to buck into such stupendous challenges—with, of course, untold benefits to everyone the world over.

The obvious theme that would give "epic" quality to the proposed picture was *tools* built on the parallel angles of bigness and fantastic challenge, and the tools that give man the power to overcome the challenge. The main theme was to be backed with certain other 'plus' angles—scenic values, fresh and exciting action, geological and geographical values, plus human and character interest.

(Continued on Page 562)

ONE IMPORTANT way to reduce costs of production is to minimize time lost in previewing and editing. To attain utmost economy in those two processes three requirements must be fulfilled.

First, the equipment used must be of such nature that valuable originals and masters can be entrusted to it without risk of damage. Otherwise editing and previewing must be deferred until after duplicates have been made. If production must be suspended pending previewing, the time thus lost can be of significant importance.

Second, the equipment used should be sufficiently versatile in design and details to meet all normal demands of studio and telecasting procedures without any delay for modification of facilities or special setups of any kind.

Third, the equipment should permit several persons to see the picture and hear the sound simultaneously. And if the picture is bright enough for several persons to see it clearly under ordinary room lighting that is a further advantage.

The Precision Film Editor is a device engineered in every detail to meet the above requirements completely and with generous tolerances. It is versatile and flexible in operation to a degree that is unprecedented in operation; if used with only ordinary care, even by unskilled personnel, it can be trusted absolutely not to damage film. It presents a 7×9 in. screen image bright enough to be seen clearly under ordinary room illumination and a loudspeaker output of 4-w.

Figure 2 is a general view of the machine. At top, rear, is the screen, flanked on one side by the loudspeaker grille and on the other side by a dummy grille included for symmetry of appearance, behind which is located the amplifier.

The projector mechanism and soundhead are grouped on the panel in the center of the table, with the projector nearer the screen and the soundhead at

(Continued on next page)



Fig. 1—The Precision Film Editor, with 7" x 9" viewing screen.

Precision Film Editor

A recently developed preview-and-editing machine which utilizes a continuous projection process in place of the customary intermittent movement.

By TORBIN JOHNKE

Editor Precision Equipment Corp., New York



Fig. 2—Foot pedals control forward and reverse motion of films.



Fig. 3—Closeup view of controls and film threading pattern

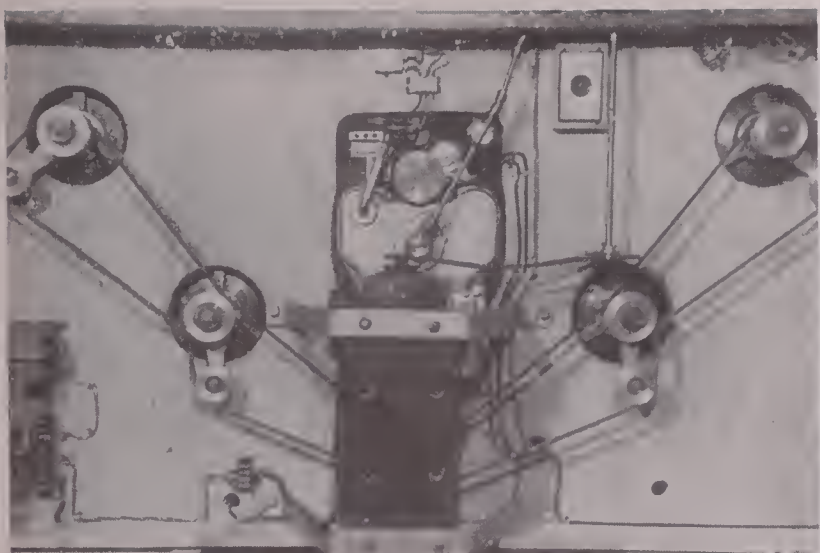


Fig. 4—Under-the chassis view, showing drive system.



Fig. 5—Rolls or reels of film lie flat

the rear, nearer the operator's position. The two turntables at left are intended for picture and sound reels, respectively, the one nearer the screen carrying the picture film and the one nearer the operator, the sound film. The corresponding take-up turntables are at the right. However, right and left can be reversed, since motor direction can be reversed with ease.

The controls are seen, conveniently located for the right hand, on the front of the desk. The chromium control at left is for adjusting synchronism between picture and sound. The sound reel always runs at constant speed—although that speed may be varied; the chromium control is used to adjust the speed of the picture reel faster or slower with reference to the sound reel, until synchronism is attained. A frame counter shows exactly how many frames displacement are needed to achieve synchronism. At the right of the synchronization control wheel is the speed control knob. This alters the speed of both sound and picture reels simultaneously

between limits of 2 and 56 frames per second. To the right of the speed control is a row of switches for the amplifier, motor, etc., and a volume control. The foot pedals can be used instead of the hand control, if preferred, to set the equipment into operation. Pressure on the right pedal drives the films forward; pressure on the left pedal automatically disengages the forward drive and throws in reverse drive.

Figure 1 shows the panel controls in greater detail, and also shows the editing machine with separate picture film and sound film threaded, in one of the three ways of threading.

There are two other ways of threading. When previewing or editing combined picture and sound prints, the picture film is threaded through the aperture and then run directly to the soundhead without loops. Since the projection process is continuous and an intermittent movement does not exist in this mechanism, no loops are needed; and if the film is threaded taut the displacement between picture and sound apertures is always

exactly $19\frac{1}{2}$ frames. When separate picture and sound prints are used, and the purpose is to edit dialogue or perform any other function for which sound flutter is not important, the sound film can be threaded through one sprocket only instead of two for faster, easier operation.

There are two general methods of editing. In one, the editor uses the surface of the editing machine as a rewind bench, and cuts and splices the film as he proceeds. In the other, the editor makes notes which are passed on to another person who subsequently does the cutting and splicing. These notes may include information on the number of frames displacement needed for synchronism. They may also include references to the film markings made by the editor, for this machine has two film markers, one at the picture aperture and the other at the sound aperture. Figure 6 shows the latter in use. A small chip is nicked out of the film. These chips drop into containers provided for them, which must be emptied occasionally; loose chips might conceivably get into the drive and scratch film, hence these special containers which make any such occurrence impossible are provided.

The drawers at the right and left side of the machine provide reasonable storage space for film, reels, splicing materials, note pads and other facilities for efficient operation.

Figure 4 shows some of the mechanical details of the drive. The motor is wound for 220-v, 3-phase a-c, and has a built-in stepless gear for continuous variation of driving speed. In Fig. 4 you are looking at the machine as it would appear if laid over on its back; the underside of it faces the reader and the control panel is at the top. The chromium synchronization-control wheel is just visible at the top, toward the

(Continued on Page 564)

FIG. 6—Film marker at the sound aperture. Pressing lever punches small chip from film which drops into receptacle beneath equipment.



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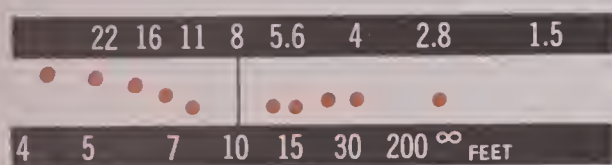
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	LENGTH	APERTURE	MOUNT	WEIGHT	PRICE
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*Switar	25mm (1")	F:1.4 to F:22	Bolex only	5 oz.	178.50 Inc. FET
*Switar	25mm (1")	F:1.5 to F:22	Bolex only	5 oz.	122.00 Inc. FET
*Pizar	26mm (1")	F:1.9 to F:22	"C"	5 oz.	94.25 Inc. FET
*Yvar	75mm (3")	F:2.8 to F:22	"C"	5 1/4 oz.	94.50 No Tax
*Yvar	100mm (4")	F:3.3 to F:22	"C"	6 oz.	106.00 No Tax
*Yvar	150mm (6")	F:4 to F:32	"C"	7 1/2 oz.	145.75 No Tax

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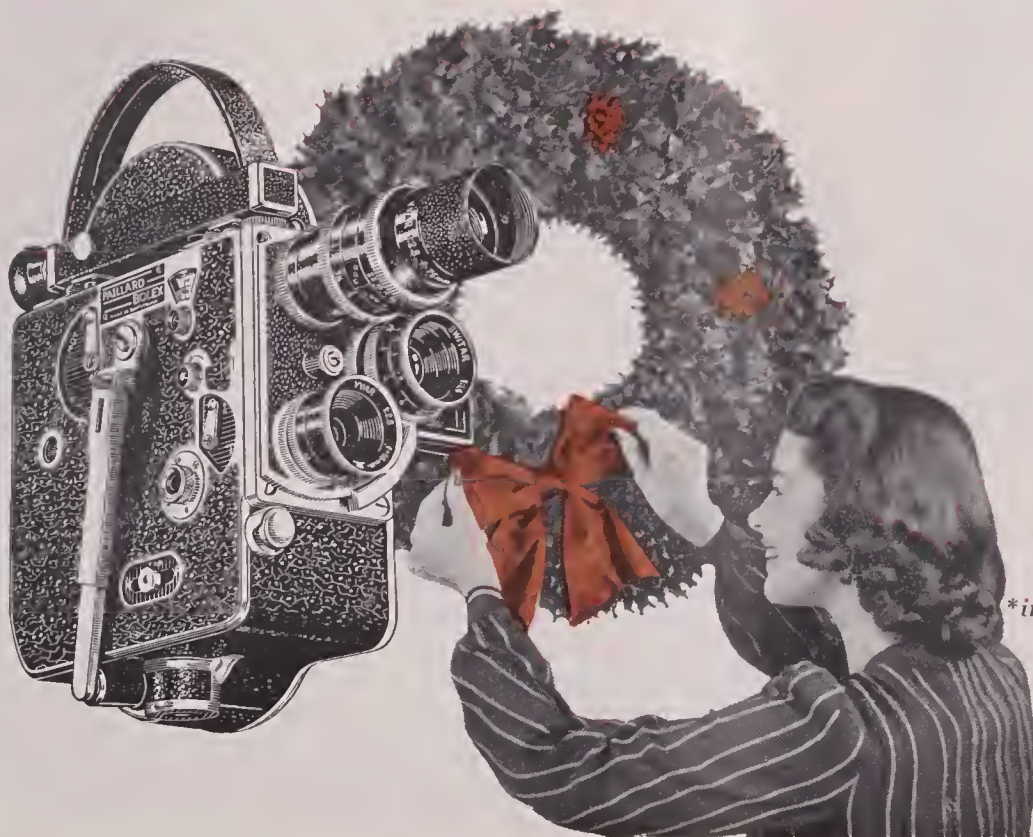
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WHO'S WHO IN TV CINEMATOGRAPHY



Harold Stine, ASC, who directs the photography of the "Superman" TV film series was presented with chair by members of cast and crew when Stine celebrated his birthday last month. Chair frame bears autographs and comments of well-wishers. Stine (center) accepted gift from assistant cameraman Robert Hauser (left) and operator Harry Underwood.



George Diskant, ASC, (left) who directs the photography of the "Singer Four Star Playhouse" TV film series, lines up a shot as star Dick Powell (foreground) looks on approvingly. Powell, along with Charles Boyer and David Niven star in the dramatic series of films, which are televised over CBS-TV.



Edward Colman, ASC, (2nd from left) director of photography of the "Dragnet" TV film series, awaits approval of a camera setup by Jack Webb (left) star and director of the dramatic series, rated one of the best TV programs in the national polls. "Dragnet" films are photographed at Walt Disney Studios in Burbank. At right are members of the camera crew.

"Look, Phil—I like this angle better," says radio-TV comedian Jack Benny to director of photography Phil Tannura, ASC, who photographed Benny's initial four TV films, soon to be seen over CBS-TV. Tannura, who regularly photographs the "Burns and Allen" television show on film, appears to doubt wisdom of Benny, seen here observing scene through finder of Tannura's Mitchell camera.



A FILM MAKER OFTEN spends a great deal of time and effort turning out a good script only to nullify the effect in actual shooting by ignoring one important step in preparation: the process known as *production planning*.

It is rarely, if ever, that a good film "just happens." Almost always, a picture worth seeing on the screen is the result of a good deal of hard work, most of which must be done before a camera starts grinding. In order to best accomplish this preliminary preparation for shooting, the film-maker should constantly visualize the production in its overall form—not merely as a collection of fragmentary scenes that can be shot haphazardly and spliced together.

Actually, production planning in one form or another is as essential to the home movie as it is to a feature or commercial sound film. Naturally, the more involved the story, the more thorough the phase of planning must be.

Careful preparation will give the resultant film a general smoothness plus a unified approach so that, on the screen, it will seem to have been designed and executed by one creative mind, even though many technicians may actually have had a part in the filming.

In addition to this individual "touch," pre-planning assures consistent continuity and a minimum of wasted



THE STORY BOARD is an effective means of visualizing a script in the production planning stage. Each scene is sketched roughly and arranged in sequence. Photo courtesy Raphael G. Wolff Studios, Hollywood, Calif.

Production Planning

The pre-production planning methods employed by major studios can benefit the amateur and semi-professional movie maker, too.

By CHARLES LORING

expense, effort, and time. This latter item is no small consideration, for time on the sets is important. It should not be wasted by making a full cast and crew wait around while issues are decided that should have been settled on paper long before the picture reached the shooting stage. At best, certain unforeseen delays are inevitable—but a good deal of expensive time-waste can be avoided by intelligent pre-planning.

The producer of the film should become thoroughly familiar with his script before shooting begins. He should know every scene and sequence, its content and requirements. He should know just how each bit of action is to be staged, plus the effect it is calculated to have on the audience. He should

literally *live* with that script before he starts to shoot. With this approach he will be able to produce the film for the most observant members of his potential audience, and thus gain the best possible reaction.

The first step in production planning is to call together for a preliminary conference all of the technicians who are to participate in the shooting. The purpose of this conference is to set up certain basic standards of operation, to familiarize everyone with the approach and technical requirements of the script, and to anticipate any problems that might arise later on.

This conference should be an informal sort of affair with the producer or

(Continued on Page 550)



SCENE VISUALIZATION for a major studio production. Here a proposed set has been sketched and planned to conform with the angle taken in by a 32mm lens.



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EXTENSION TUBES permit ultra-closeup photography of small objects so that they appear highly magnified on the screen—such as the ants in this scene from a 16mm educational film.



TELEPHOTO LENSES can be used to bring closer, objects in a distant field, such as the two wary baby foxes pictured above, with comparable magnification on the screen.

Extension Tubes In Cine Photography

Coupling your camera lens with an extension tube alters the lens' characteristics. Here's how to calculate proper exposure when using extensions.

By JOHN FORBES

EXTENSION TUBES are an important part of the lens equipment of every serious amateur cine photographer, particularly those undertaking the photography of small objects highly magnified. The function of extension tubes, which are used in conjunction with the regular camera lens, is not always fully understood. In fact one filmer recently asked the writer if, by using a half-inch extension tube with a 1-inch lens on his 8mm camera, he could obtain the same picture results as with a 1½-inch telephoto lens, and also, if use of the tube would reduce the original f value of his lens.

Here it should be stated that an extension tube coupled with a camera lens does not make it a telephoto. The functions of telephoto lenses and extension-tube-coupled lenses are different. Extension tubes permit closeup photography of small objects so that they

appear highly magnified on the screen. A telephoto lens on the other hand brings closer, objects in a distant field.

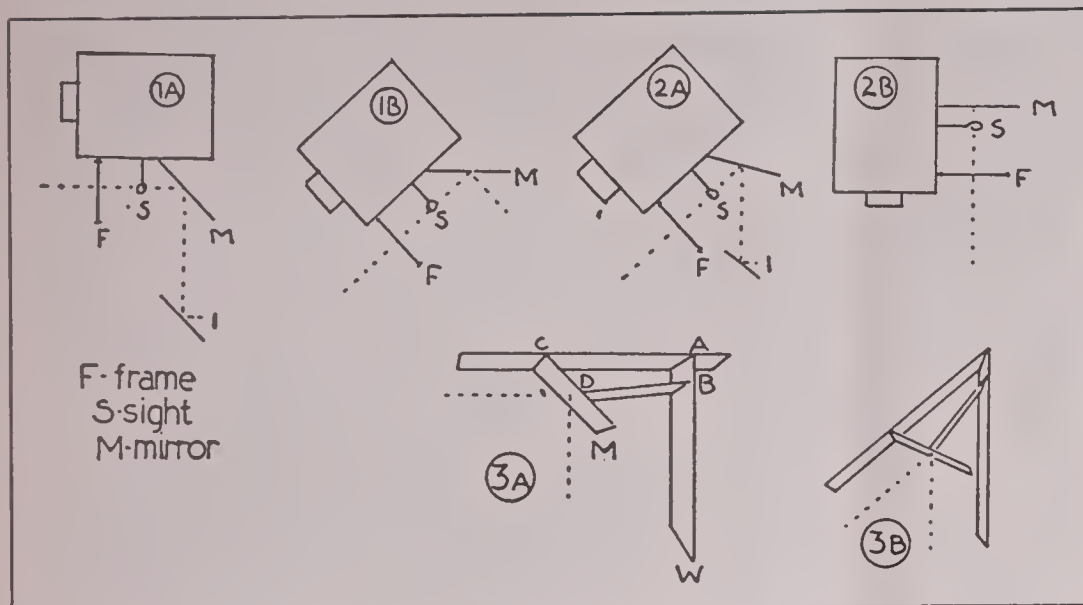
Getting back to the filmer's question above, let us first consider the original camera lens he planned to use—the one-inch for an 8mm camera. Why this lens in place of the half-inch lens which is standard for the 8mm camera? Because, said the filmer, the original lens did not give the magnification desired. But adding a half-inch extension tube to the one-inch lens would not convert it to a telephoto, according to the com-

HIGHLY INTERESTING subjects can be filmed and brought to the screen in giant dimensions when filmed with either an 8mm or 16mm camera, using extension tubes in conjunction with the regular camera lens. Here a filmer is photographing a group of ants, using a 4-inch extension tube with a 1-inch lens mounted on a 16mm Bolex camera.

mon conception of a telephoto lens. Such a combination would throw the lens out of focus because the distance from lens to film would be increased beyond the focal length of the lens. The f value of the original lens would be destroyed at once. The original f calibrations would no longer be valid be-

(Continued on Page 561)





FIGS. 1 to 3 show principle of gadget and its use on a cine camera hand-held above heads of spectators. Camera is focused on scene by sighting through mirror M, which changes angle to keep scene in view as tilt of camera is altered.

Gadget For Shooting Over The Heads Of The Crowd

Simple camera attachment enables cine amateurs to shoot parades, sports events, etc., from sidelines without interference from spectators.

By HARRY WALDEN

YOU'RE JAMMED IN A CROWD, with not a hope of seeing over the heads of the tightly packed folk in front of you. Gentlemen, this is where you use my mouse trap viewfinder! It's a mouse-trap because, when closed, it bears too close a resemblance to a "backbreak" to please the chromium and real leather addict. And it's not a periscope proper, though similar in principle; but at least it has the advantage that it can be folded up quite small.

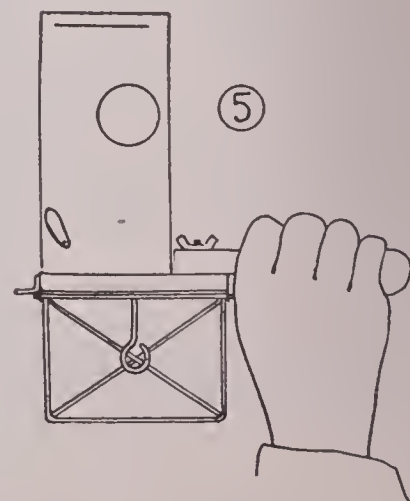
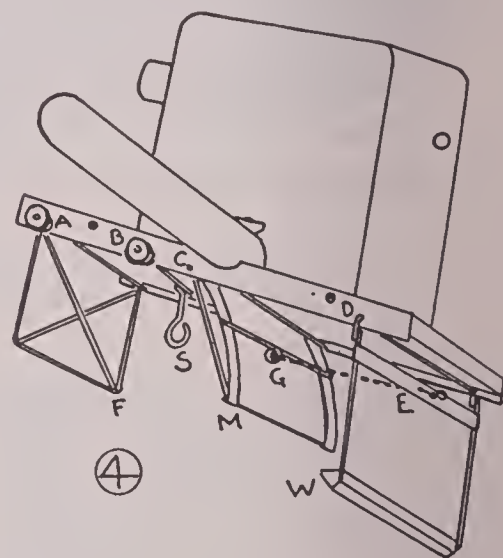
When I thought over the problem of seeing over the heads of the people in front, it seemed to me that there were two alternatives. The first was to let myself go on a really elaborate affair, a sort of pan and tilt head on top of a

periscope with a special compensating viewfinder and a remote control to press the trigger of the camera. This would have to be steadied, possibly suspended from a strap around the neck or with the "foot" in a waistcoat pocket or an extension to the ground. For unless you make that tilting top and compensating viewfinder, the camera can only be tilted forward by leaning it right over, and that can be very awkward. (Compare figures 1A and 1B.)

FIG. 4 (above) is side view of device, showing means of suspension of variable mirror and the counterweight. Fig. 5 is view of camera and gadget from rear, showing sight and centering ring.

The alternative was to keep the gadget as small as possible, which meant holding the camera in the hands above the head and having a special viewfinder with some sort of optical compensation for tilt. (See Fig. 2A.) You will notice that in tilting the camera 45°, the mirror has turned forward in relation to the camera only about 12° and that, were the camera to be turned down 90°, the mirror would need to move only 45° (Fig. 2B.)

Could this be done by means of some sort of simple pendulum or balancing? The problem occupied my mind at odd moments for several days, and a number of ideas including the obvious cam were discarded until I hit on the idea illustrated in Fig. 3A. I made a mockup out of strips of cardboard 2 inches wide, using rubber tape hinges, and estimated that it worked near enough to be useful. The horizontal strip represents a base-board which fastens below the camera, by means of a tripod screw. M is the mirror and W is a weight—the card-



board being made long enough to counteract the pull of the mirror.

As the mirror has to move through only half the angle which is turned by the weight when the camera is tilted (Fig. 3B), the connecting piece was fixed so that AB is about half of CD. I realized when the thing was assembled that the connecting piece DB need not be rigid and that, if flexible, the whole affair could be folded fairly flat when not in use. Here then was a possible arrangement which could be used above the head if a 45° mirror were fastened to the front of my spectacles.

Fig. 4 shows the final arrangement. While it would be nice to have it smaller, this is impossible as the frame of the finder would have to be about five or six inches across in order to give a correct view at arm's length above the head. I failed to find a mirror of very light weight and had to content myself with a small handbag mirror 3½ by 2½ inches, purchased from a dime store. This fixes the width of the board and limits the width of the finder frame.

When the gadget is fitted to an old Dekko camera having a one-inch lens, the image seen in the viewing mirror is nearly that taken in by the camera lens. Where the gadget is used with a one-inch lens on other 16mm cameras or a half-inch lens on 8mm cameras, the image is about two-thirds that covered by the camera. So we have a reasonable margin of safety—useful when taking a subject under such tricky conditions.

The baseboard—just over 3½ inches wide and 7½ inches long—is made of 5/16 inch plywood. A metal strip (1/32") is screwed to each side so as to project 3/16" below the bottom of the baseboard. These strips are drilled at A, B, C, and D (Fig. 4) to take thin rods that form spindles which the frames F, sight S, mirror M and weight W are to hang. The hanging wires for the frame and sight are a little thinner (just over 1/16" galvanized iron) and are bent to size, with ¼" "feet" to make strong soldered joints with their spindles. The near ends are tapped 6BA, a small nut inside the metal strip being soldered and a knurled nut fixed outside. The frame and sight can thus be folded up but also can be set up quite rigid when in use.

The mirror M is held at each side by a slightly curved piece of 3/8" steel strip (1/32"), turned up at the ends to clip over the top and bottom, as shown in Fig. 4. Made a little too small, the strips can be sprung over each end of the mirror and fit tightly. A piece of the wire with a loop in the middle is soldered nearly half way down the back of the mirror, joining the two metal strips G. This wire corresponds with the

(Continued on next page)

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point D in Fig. 3A. The loop is to take the cord DB.

The frame to hold the weight is made a little wider than the mirror in order to clear the mirror when folded up. The spindle, extending about $\frac{1}{4}$ " each side of the metal side strips, is bent down at the ends and to it $3\frac{1}{2}$ " rods are soldered. The counter-weight, consisting of a length cut from a bar of hard solder, is soldered to the bottom of the hanging rods W. A steel strip with a hole drilled in the middle (E) is soldered at each end to the two hanging rods—near the top—the hole corresponding with the point B in Fig. 3A.

I tried one or two arrangements to secure an adjustment of the length of the cord from mirror to weight, but found complications in the movement of the mirror unless there was a straight line from mirror to weight (G to E). The cord is therefore passed through the hole and winds around a screw—a half inch to one side of the hole. The length of the cord is adjusted by turning the screw.

This screw is made of a very short piece of rod, tapped 6BA at one end with the other end bent into a small ring.

THIS ARTICLE, which describes the construction and use of a most useful gadget for 8mm and 16mm cine cameraists, is reprinted with permission from the June, 1953 issue of *Amateur Cine World*, British publication for amateur movie makers. Author Walden, a regular ACW contributor, has built a number of interesting and ingenious gadgets which he will describe in subsequent issues of that publication. For further information about *AMATEUR CINE WORLD*, write to Gardan Malthouse, Editor, 46-47 Chancery Lane, London W.C.2, England.—Ed.

The screw-thread passes through a hole drilled in the strip, with a small nut on each side of the strip. The nuts are screwed down hard and then both are soldered to the rod. With pliers the screw can be turned in its hole in the strip and, once moved, can be turned with the fingers. When the cord has been set to correct length, it does not slip.

Now for one or two lesser points. You'll see from Fig. 3A that unless the weight is very heavy or a long way from the spindle, the mirror will tend to pull the weight forward. To help to overcome this, the weight itself is therefore fixed in front of the rods from which it hangs.

The shape of the viewfinder frame is in the usual 4:3 ratio. The width is fixed by the width of the board. Cut or tear a strip of paper that width. Fold it in four and cut off the end fourth. The remainder is the height which the frame should

be made. Again fold this piece of paper in two and cut in half. This is the height of the sight (S).

The steel strip and spindles are partly from a Juneero set and the strip was cut, bent and, in fact, punched (not drilled) with this handy little tool. This saved a lot of time. Unfortunately—so I am told—it is no longer on the market and I am on the lookout for a source for substitutes, particularly the strip ($\frac{3}{8}$ " x $\frac{1}{32}$ "). The soldering was all done *in situ* with Baker's flux, which I find much quicker than resin. The whole thing is a bit rough in appearance but then it has stood up to a good deal of rough usage.

Now that I'd made it, how to hold and use it? The camera would obviously be fixed on top by means of a $\frac{1}{4}$ " Whitworth winged bolt through the baseboard. The trigger would also need to be near the edge of the board, in reach of a finger, and it would have to be held so that the hands do not foul the movement of the mirror or obscure the picture.

The answer, as can be seen in Figs. 4 and 5 is a 6" length of broom handle fixed by butterfly nut above the board at right angles, on the side away from the camera trigger. In addition, a small angle piece, actually consisting of a small loop of bent wire, is soldered to the metal side strip just below the trigger. This rests on the ball of the thumb and helps to steady the camera, whether the cameraman faces forwards or backwards.

In use, the camera is held up and is first moved so that the eye sees the crossed wires in the middle of the sighting ring. If the sight appears too low the camera must be moved back, i.e., with arms more upright, and *vice versa*. If this is not a convenient position for the arms, the length of the cord must be adjusted until it is. Camera too much overhead? The cord must be lengthened. The sight is to left or right of the crossed wires? Tilt the camera to left or right.

Once the camera position is found, the camera can be tilted on the axis of the handle and the sights remain in line, i.e., for a pan down or up. It is effective for about 45° down, and about 20° up. to turn from left to right, i.e., to pan, swing the whole body. The camera can be held very steadily if one can rest the far end of the board—that is, at the back of the camera itself—against some solid support, such as a wall or lamp post. It is therefore as well to ensure that the end of the board overhangs the weight sufficiently, or it may be fouled. Otherwise fit a peg or rubber buffer to the end of the board. Also, the camera could rest on a collapsible stick or rod,

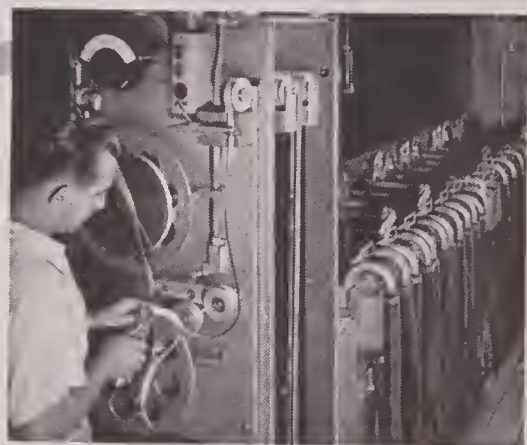
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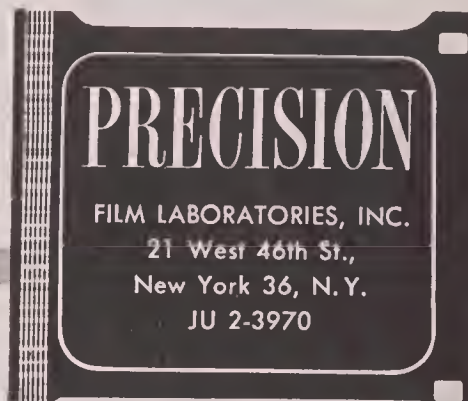
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with trunnion top to fit pegs in the sides of the board. But this again is an added complication.

I did wonder whether the whole gadget should be enclosed to avoid the effect of wind (with lighter materials this might possibly have been necessary), and whether difficulties might arise from a swinging pendulum effect. It is, however, quite simple to rest the side of the hand momentarily against the mirror or weight to bring them to rest.

If, in fact, you prefer the simplification, the mirror can be fixed with a

locking screw, in the same way as the finder frame and sight, and the weight thus dispensed with altogether. But that will mean that only a very small angle of tilt can be used, or you fall backwards. Alternatively, if you attempt to alter the angle of the mirror by hand during shooting, there is one more variable to be taken care of, and there are quite enough already! So unless tilting during shooting can be avoided, I recommend the use of the weight.

So there it is! As I say, it looks a very rough and ready affair, but in my hands, at any rate, it works well.

PRODUCTION PLANNING

(Continued from Page 543)

director reading the script aloud to his technicians, explaining it as he goes along and answering any questions that they might have. It is advisable for all present to make notes of any ideas they may get while the script is being read.

When the reading of the script has been completed, the producer should then explain to the group what approach or *slant* he has in mind for putting the story on celluloid. He should ask for suggestions and encourage any ideas that will make the picture more effective in any way. It is only a second-rate producer whose pride will not allow him to recognize and use good suggestions submitted by others, merely because he himself was not the originator.

It is during the preliminary conference that any obviously impractical features of the script can be discussed and revised, if necessary. Far better to do it at this time than try to correct mistakes after a sequence has already been filmed.

After the conference, the producer and his assistants should be ready to make the *production breakdown*. Actually, this amounts to dissecting the script into its separate scenes and sequences in order to estimate costs, set up a *shooting schedule*, and determine the requirements of each scene in terms of cast, props, locale, etc.

The director and the cameraman should go through the script scene by scene, discussing each camera set-up and determining how it is to be executed. Both should know in advance of shooting just exactly what each set-up is and how, when and where it is to be filmed.

Simple scripts for home movie films can usually be shot in sequence without undue trouble, since such stories are relatively uncomplicated and take place in a confined locale. But when a more

intricate feature, either photoplay or commercial, is to be shot, it is usually a good idea to group the scenes for camera angle, locale, cast, etc.

For a typical example, let us say that scenes 2 and 82 both take place in the same locale, one that is some distance away. Obviously, instead of making two different trips to that location as the scenes come up in sequence, it would be more convenient as well as economical to shoot both scenes at the same time, even though they were to appear at widely separate points in the story. Similarly, if certain cast members were to be shown in scenes 5, 43 and 102, it would be more logical to shoot all these scenes together, if possible, than to call the players back at three different times, or keep them waiting around during the entire filming.

The most ambitious step in breaking down a production that is at all involved, is to prepare a separate *dope sheet* for each scene. On this sheet is recorded, in separately ruled spaces, data as to the locale, cast required, whether interior or exterior, lighting set-up, props, costumes, special effects, etc. It is even advisable to include a diagram of the camera angle, or a rough sketch of the composition of the scene as it is to appear in the frame. Also on this sheet, spaces should be left to fill in during shooting the running time of the scene, exposure used, and any other technical data concerning the take.

Having made the *breakdown*, the producer is then ready to set up a *shooting schedule*. Grouping his shots for maximum efficiency, he estimates how long it will take to shoot each scene. In doing so, he takes into consideration the manner in which his technicians work on the set as well as unforeseen holdups that may delay shooting. He will also consider the matter of locale. For ex-

ample, if Sequence A and Sequence D are to be shot in locations that are close together, it would be wise to schedule them for shooting consecutively in order to save time in transportation.

Once the *shooting schedule* has been set up and approved, it should be rigidly adhered to throughout the shooting of the picture. A well-defined *schedule* will result in a smoothly functioning production.

Next to be considered is the matter of budget. No matter how much high-brow film-makers may rave about "Art for Art's Sake" and the observation that "money does not make the picture," the fact remains that in the making of any film there will be certain necessary expenses. In the case of the home movie, financial outlay may simply involve the cost of the film with processing included. On the other hand, a commercial or documentary film may involve sets, cast, technicians, processing and film costing thousands of dollars.

The objective of the intelligent film-maker is to get the most apparent *production value* into his picture with the smallest possible cash outlay. This can be accomplished if a practical budget is drawn up beforehand, and if over-elaborate tricks are avoided.

An essential step in budget-planning is to get actual cash estimates on every expenditure that must be made. These can be had by speaking in advance to the technicians and craftsmen involved, finding out from them just what each item will cost, and asking for suggestions to help keep the film within its budget. Try to get these estimates down to the penny, and then allow an additional 10 to 15 per cent for unforeseen expenditures.

Avoid effects or devices that will involve a great deal of expense. Usually, if some thought is applied to the problem, ways can be found to achieve a similar effect without stretching the budget.

Backgrounds are very important, not only as a story-telling element, but as a way to add pictorial quality to a film. They should never be merely thrown in because they are pretty; always the background should be motivated by the dramatic requirements of the scene. Nor is it necessary for effective backgrounds to involve a great deal of expense. Remember that interior backgrounds cost money because they require artificial lighting. Therefore, it is best to slant the action so as much of it as possible can logically be filmed outdoors.

It may be necessary to hunt up these exterior settings by means of scouting trips made in advance. If you do not find the exact backgrounds required, slight changes in the script will often allow a satisfactory compromise.

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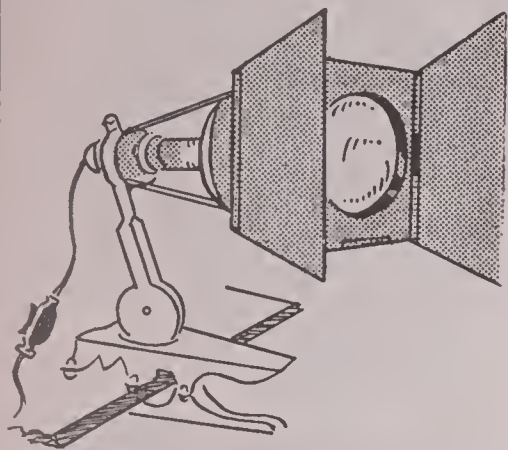
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When the settings you choose are private property, get the owner's permission in advance before shooting pictures there. Most laymen are sufficiently fascinated by the idea of motion picture production that they readily give their consent just for the novelty of watching a crew of movie-makers at work.

Props and costumes can often be borrowed, thus saving money on rentals—although it may take some inquiries in order to find suitable materials and people who are willing to lend them. Rentals of equipment can be held to a minimum by intelligent grouping of scenes. For example, where the script calls for interior scenes, scattered throughout the script but totalling two weeks of actual shooting time, schedule all interiors for filming consecutively so that lighting equipment need only be rented for that two-week period.

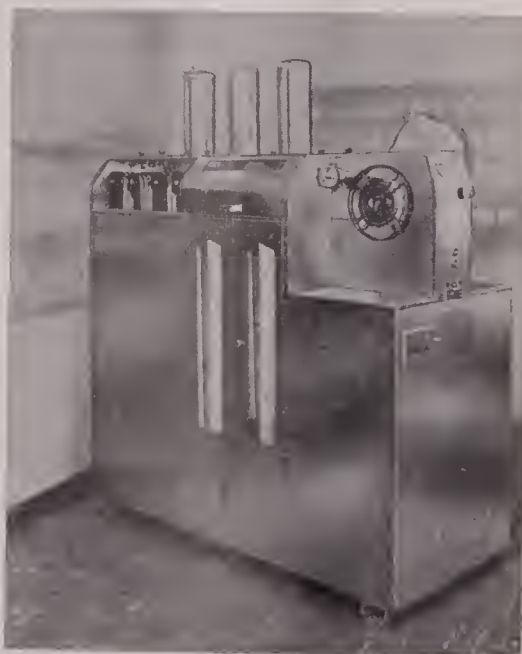
Film costs, of course, vary with the

type of motion picture that is being made. If you are shooting a home movie, it is convenient to shoot reversible film which is sold with the processing charge included. If, on the other hand, you are shooting a production or commercial type film (especially one that is to have sound added later) use negative film from which multiple duplicate prints can be made. The processing of negative stock is usually *not* included in the purchase price, so you must count on an extra laboratory fee.

Where the picture is of a commercial or semi-commercial nature, you may be entitled to a professional discount on film amounting to as high as 25 per cent. This is especially true when film is purchased in large quantities. Your local wholesale film dealer will be able to tell you whether or not you are entitled to the discount.

Just before shooting is scheduled to begin, it is advisable for the producer

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Light-tight hoods over the first three processing tanks permit the machine to be operated in ordinary light. Only a small darkroom (such as a closet) is required for loading the film in the light-tight daylight-loading magazines provided with the equipment. Any length of film up to 1000 feet may be loaded in one of the two magazines, permitting rapid processing of short spot news films or continuous processing of complete programs.

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The manufacturer stresses that a minimum of servicing is required and that the ease of maintenance was one of the considerations when the machine was being designed. All plumbing is on the outside for ready access, and the tanks are easily removable if desired.

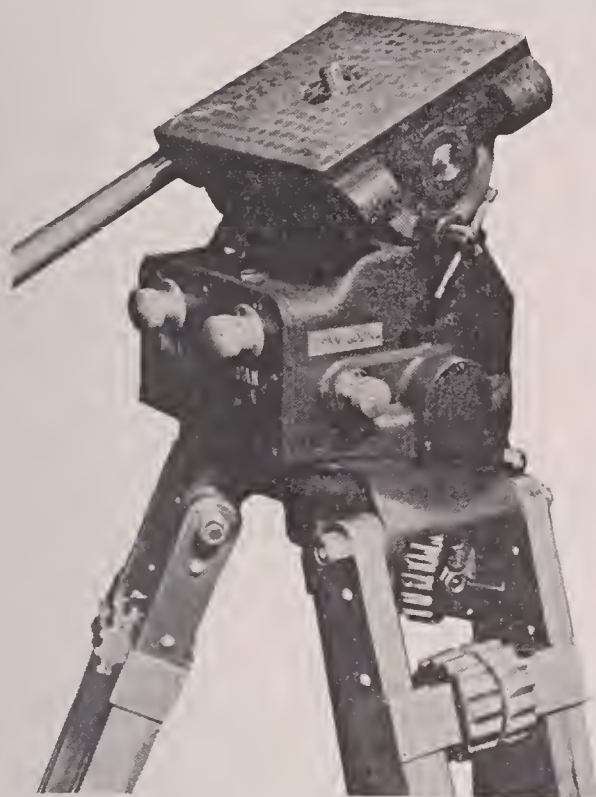
Complete specifications and price of this equipment may be had by writing to the manufacturer, Houston-Fearless Corporation, 11809 West Olympic Blvd., Los Angeles 64, Calif.

TO MEET THE NEED of television stations to rapidly process 16mm film at speeds of from 20 to 40 feet per minute, Houston-Fearless Corporation, Los Angeles, has designed a new film processor—Model 16R40—which automatically develops, fixes, washes, dries and reels 16mm film ready for showing. All necessary equipment is contained in the compact cabinet pictured above; there is nothing else to buy.

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to call his cast and crew together for a last minute conference. It is at this time that all the loose ends of production can be drawn tightly together and any final problems settled.

If pre-production planning has been carried out carefully and with attention to detail, the actual shooting of the picture should be relatively easy and uncomplicated. Studying his *script and dope sheets* before each day's shooting, the director will know in advance just what is to be done the next day. If his crew is similarly well-oriented, there will be no indecision on the set, nor costly hold-ups in shooting, nor ill-advised compromises arrived at on the spur of the moment because some detail of planning was overlooked.

The director has presumably rehearsed the action of each scene with his actors before arriving on the set, but there will, of course, have to be rehearsals just before shooting so that the lighting, camerawork, sound, and other technical details can be co-ordinated with the action.

Where the film is later to be sound-narrated, the words of the narration should be read aloud during rehearsals so that the action can be keyed to the narration.

The director's assistant should make sure that all elements of the scene, human or otherwise, are available on the

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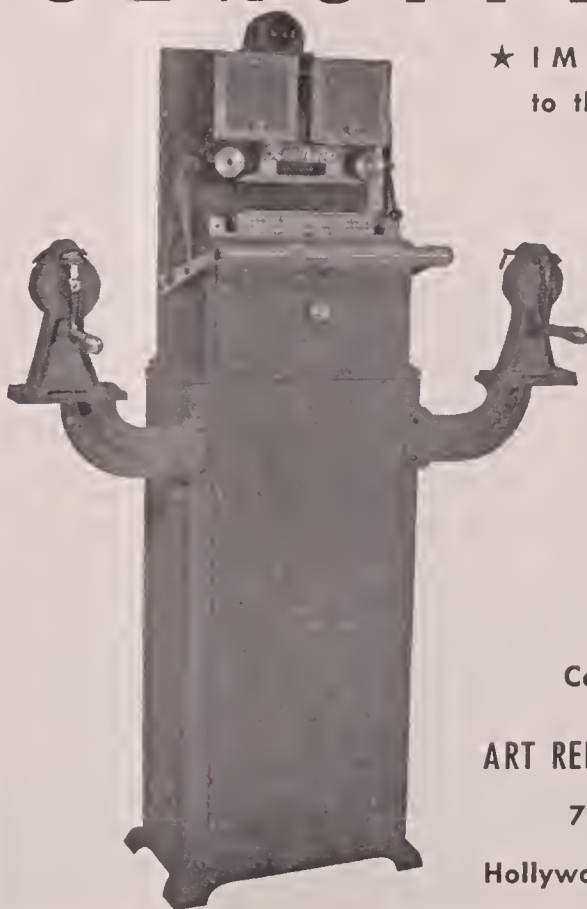
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set before shooting is scheduled to begin. Last minute dashes to secure personnel or properties never help to make for a smooth-running shooting routine.

Pre-production planning is of paramount importance to the success or failure of a motion picture. On it will depend whether the resulting film is a cinematic hodge-podge or a fine piece of entertainment. The advanced amateur and semi-professional film-maker can profit by adapting for his own use the pre-shooting routines followed in the professional film studios. Such care in planning cannot help but show up favorably on the screen.

The foregoing article is adapted from the Cinema Workshop series, by Charles Loring.—Ed.

NATURAL VISION

(Continued from Page 535)

other for each scene, these tolerances could not be maintained.

(2) Nor did we feel that from the visual point of view the changing of the interaxial was consistent with physiological fact. The interaxial between the two human eyes is constant. Normally stereo is greater for near than for far. In changing the interaxial, the reverse is true: stereo is decreased for near and increased for far. In the cutting—from long to medium to closeup shots—changing of this stereo point of view was very apparent and disturbing. Since stereo is more effective for near than for far, to decrease it would be to defeat our initial purpose of photographic realism. In other words, we wanted our stereo to be natural and constant, and not off and on.

(3) Modern motion picture techniques are dynamic in concept, with the camera moving, panning and dollying, and the principal actors in the scene also moving. If the stereo set-up is calculated for a still set-up, these dynamic techniques are therefore limited. In other words, a still camera set-up was static, and we felt that the system should be flexible and dynamic as the action of the scene itself.

It then followed that if we felt that a feature-length motion picture could be shot in the so-called variable interaxial system, could we find a system that would be compatible to modern motion picture techniques?

We felt that if a system followed the basic laws of the human eye physiology, it would work.

The Equipment: It was indeed fortunate that veteran camera engineer and inventor Friend Baker was selected to design the equipment, and also master camera technician O. S. (Buddy)

Bryhn to build the first camera mount. Mr. Baker had been working in stereo for more than twenty years, and had designed and built an excellent stereo adaptor for a 16mm camera. This adaptor placed the stereo pairs on one film, and had a fixed interaxial and variable parallax control.

We were able to film some test scenes of cars and engines with this 16mm equipment, and were highly pleased with the results. We felt that Mr. Baker's ideas of rigid camera line-up and matching, and the fixed interaxial and variable convergence (which simulates the human eye), together with his practical experience in motion picture photography, would enable him to invent and design a camera mount that would work.

And so we consummated a deal with Mr. Baker to invent and design a 35mm 3-D mount with fixed interaxial and parallax control. Mr. Bryhn built the camera mount. And it worked. With this camera was filmed the first Natural Vision pictures — "Bwana Devil," "House of Wax," and "Charge at Feather River." Of course improvements were made as we went along, and the mounts that followed were much improved and indeed beautiful precision mechanisms. But basically they were the same as our first. And as our work progressed, the camera crews refined the techniques in using the cameras.

The camera mount was designed to synchronize two standard Mitchell 35mm NC cameras. The mount was made so that the two cameras could be permanently and accurately lined up with each other, and to withstand the rough jarring that is required of cameras in making a modern motion picture. The mount was so designed that the cameras could take the usual battery of lenses from 35mm to 100mm. The

ABOUT THE AUTHOR

A prominent Beverly Hills eye surgeon, Dr. Julian Gunzberg is also vice-president of Natural Vision Corporation; Senior Attending Ophthalmologist of the Los Angeles County General Hospital; Diplomate of the National Board of Medical Examiners; Diplomate of the American Board of Ophthalmology; Fellow of the American Academy of Ophthalmology and Otolaryngology; Associate Professor of Ophthalmology, College of Medical Evangelists; and Associate Attending Ophthalmologist, Cedars of Lebanon Hospital, Los Angeles.

A distinguished non-professional still photographer, Dr. Gunzberg served as visual consultant on the following 3-D film productions: "Bwana Devil," "House of Wax," "Charge At Feather River," "Fort Ti," "The Moonlighters," "Comets West," "Devil's Canyon," "Top Bonanza," and "Mogog."

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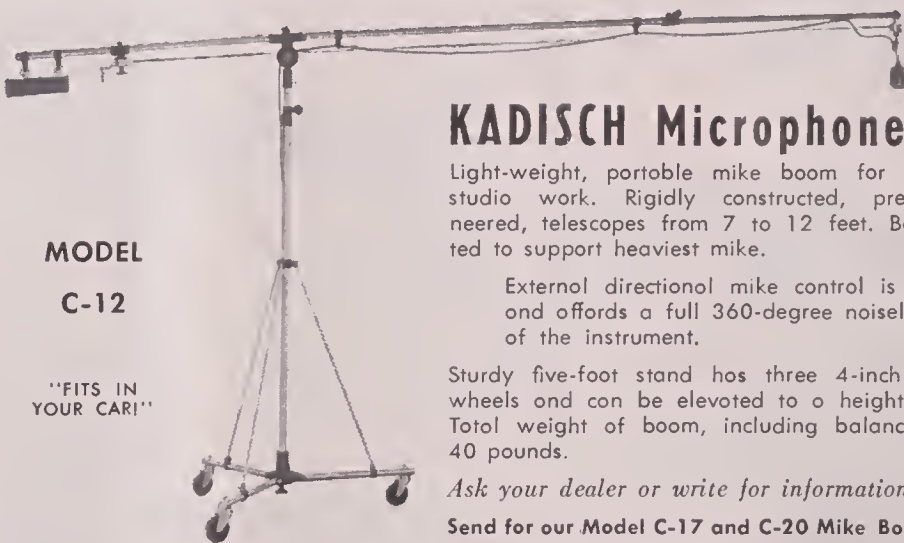
CANADA

lenses were coupled with each other so that focusing between the two cameras was in absolute synchronization, and focusing changed during the taking of the scene as in normal 2-D one-camera photography.

The two rigidly mounted cameras faced each other and took their images off two accurately placed front-surfaced mirrors placed at a 45-degree angle to the film plane of the cameras, and hence 90 degrees from each other. This meant that the optical axis of each camera lens was projected straight ahead and parallel to each other. The distance between these two optical axes was the important interaxial, and the distance we selected was three and one-half inches. Why we selected this interaxial distance will be brought out shortly.

The two mirror posts were designed also for rigid alignment, and were coupled with each other so that parallax could be accurately changed during the shooting of a scene, with the same facility as varying the focus of the lens. This accurate control and ability to vary the focus and parallax during the taking of the scene became the crux of our system.

Besides the making of the camera mounts, the two cameras had to be matched in every detail. Every phase



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of the camera mechanism had to be in precision synchronization, each pair of lenses accurately matched. Also a tremendous amount of work went into experimentation with mirrors, and in synchronization of the shutters so that they were exactly frame for frame.

Why was three and one-half inches chosen as the interaxial constant? It was selected because it was felt that it gave the best over-all stereo picture. The picture looked natural to the eyes. The stereo distortions and the separations were easily controlled, and this inter-

axial made for good design of the mount, and had many mechanical and optical advantages. And in comparing the human eyes, with their shorter focal length optical system and smaller viewing field, with the larger viewing field and longer focal length lenses of the 35mm cameras, a 3 1/2-inch interocular would be comparable to the 2 1/2-inch interocular of the human eyes.

NOTE: Next month, Dr. Gunzberg will outline in detail the basic concepts of the Natural Vision system.

WITH A SCRIPT, A PLOT AND A STAR

(Continued from Page 533)

The first production was sent off to the Navy Photographic Center at Anacostia, Md., accompanied by a script showing the shot-by-shot breakdown and the suggested narration. Processing, editing and dubbing would be done there.

The next picture, aimed at TV, dealt with the building of the 1st Marine Aircraft Wing Memorial Orphanage at Pohang, South Korea. The entire planning and construction of the orphanage were re-enacted by "actors" drawn from the Marine ranks, which were headquartered nearby. South Koreans taking part in the film depicted the roles they had played in the actual establishment, and more than a dozen orphans from the institution were used. The film was shot in 16mm Commercial Kodachrome, using a Mitchell camera. A double-system sound unit was used for several scenes in order to record actual dialogue by Marines and Koreans. The entire project was completed in four days, despite bad weather.

At this point, the camera unit was so riddled by rotation of personnel to the States, that additional personnel from the Marine Wing was called upon to help out. I became a director by the simple expedient of a printed order from the ever-present "higher authority."

Our third production was the personal brainstorm of Major Tom Saxon, public information officer for the Marine Air Wing and my boss prior to my temporary reassignment.

"Why not a story on helicopter evacuation as told from the camera's angle?" he wanted to know. There were explanations about inadequate equipment and lack of technical devices for such a project. It was an intriguing thought, however, and I set to work on a script, while the two cameramen who would work the show watched to be certain I wouldn't demand the totally impossible.

The story was aptly titled, "I Am A Casualty" and was a simple story which

began with a piece of stock footage taken aboard a hospital ship in black and white. The narration pointed out that the narrator might be any of the men present and offered some comments about the efforts to save lives at any cost.

From there, the story flashed back to the Korean front and was done in color. It was a simple tale about a patrol that went out forward of its own lines only to be caught in an enemy mortar barrage. With two men wounded—one of them the narrator—helicopters were called in and evacuation made to a hospital ship in Inchon Harbor.

Telling this strictly from the camera's viewpoint—making the lens the "eyes" of the narrator—was not as simple.

Cal Larsen, now a chief photographer, handled most of the camera work, assisted by Jimmy Miller, a Photographer, First Class, and Master Sergeant Ralph J. Austin, a Marine movie man, who had been a Navy cameraman at Iwo Jima during World War II and had changed services.

Where possible, the hood of a jeep was used for dolly shots. All such takes had to be hand-held, since the vibration of the engine would cause too much movement for a tripod. When the small team invaded the area of Bunker Hill, where some of the most deadly fighting of the war was in progress, the jeep became an impossibility for obvious reasons. Since the story was being told in a different way, stock footage could not be used. Scenes sometimes ran for as long as a minute before a fade or a dissolve could logically be used. Since all was being told through the camera's "eyes," it was considered unrealistic to break the sequences with shots from varied angles.


"That guy, Robert Montgomery, didn't know what he was doing to us, when he did that 'Lady in the Lake' thing," Miller grumbled one morning as a group of Marines were going through their paces for the camera.

As director of the opus, I was using a technique which I had seen pay off in Hollywood quickie production. It consisted of a series of "dry runs." First, everyone concerned was briefed on the scene with it being read and explained in detail. Each "actor" was given specific instructions as to his actions, and the cameramen offered whatever additional thoughts might make their job easier. The sequence was then rehearsed while the camera crew followed the action without actually shooting. If the bit went off right, the next run was a "take." During the entire four-day shooting schedule, we never shot a scene—as long and as involved as most of them were—more than three times.

"Star" of the picture was Sergeant Don Kassera, although it isn't likely he'll be recognized back home in Plum City, Wisconsin. The only parts of his body that appeared in the entire film were his hands, feet and legs.

A helmet held over the camera and tilted just enough so the steel lip was in the frame, plus a rifle pushed into the shot at an angle, gave the impression that the camera actually was the "hero."

In the patrol shots, Kassera walked beside the cameraman, holding the rifle before the lens to offer the impression of a man carrying the weapon.



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Unable to get footage of a patrol caught in an enemy barrage without endangering more lives than our own, we called in a special effects man in the person of a demolitions officer. In all, nearly two hundred pounds of TNT were planted and wired in a small valley and the scene rehearsed twice before the demolitions were set off for the "dress rehearsal."

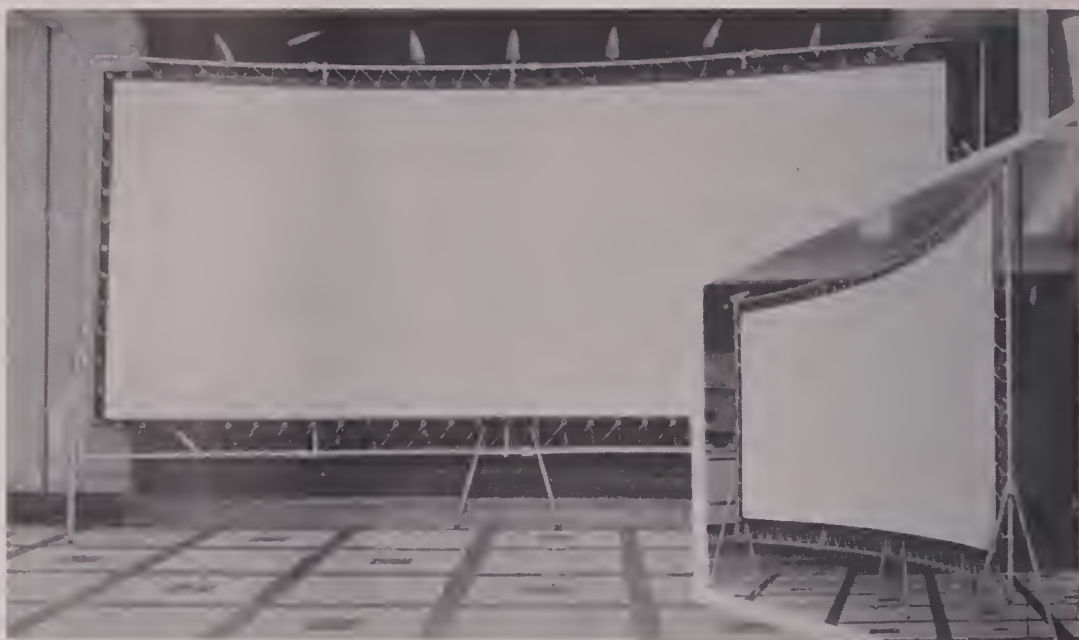
It required no urging for the battle-hardened Marines to hit the dirt as the first simulated mortar shell exploded only a dozen yards from them and sprayed the area with sand and gravel. They went on hugging the ground as more explosives "walked" toward them. During this sequence, Larsen, carrying an Eyemo with a 400-foot magazine, walked up the valley, stepping as carefully as possible to avoid the inevitable "jiggle." Miller crept along beside him, carrying the heavy case of batteries which powered the camera.

At the first explosion, Larsen dropped, first to his knees, then to his belly, camera still grinding. He then panned to the explosion and followed the others as they were set off. Meantime, Kassera shoved the rifle into the shot to show that the "hero" was prone like the others.

Near the end of the sequence, an explosion was set off some thirty feet in front of the camera and he panned just in time to catch the settling dust.

It was the next explosion, much closer, that was supposed to "get him," and we originally had planned to do this with a telephoto lens for the sake of safety. Larsen balked, claiming the shot would seem out of proportion because of lens distortion. We solved it by setting up a one-pound charge a bare six feet from the camera. Larsen and I filmed this blast on a given signal to the demolitions man, then waited out the hail of pebbles that rained down on us.

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At the same time, the film was "blackened out" by cutting down the exposure, giving the impression that the subject had been hit and rendered unconscious by the blast.

We allowed several seconds of totally unexposed film to run through the camera, then slowly refocused with an in-and-out effect on the leaves of a tree overhead. Lying flat on his back to shoot with his hand-held Eyemo, Larsen panned as Kassera slowly brought his "blood soaked" arm into the shot, showing that he was badly hit. A corpsman and the patrol leader came into the shot as the "man" tried to sit up, getting a glimpse of the other wounded Marine and of his blood-soaked and torn trousers.

The real blood we had intended to use was a priority item on the Korean front so we substituted red ink liberally shaded with Korean dirt. Sergeant Kassera is probably still trying to remove it from his skin.

One of the better effects of the film, we felt, was when the patrol leader lit a cigarette and pushed it under the camera for the wounded man to take a drag. In reality, it was Miller who inhaled and then allowed the smoke to

(Continued on Page 561)

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curl up past the lens as the victim exhaled.

Larsen followed the action as a helicopter arrived on the scene and continued shooting as he was loaded on a stretcher and actually carried to the evacuation pod and strapped in. Another helicopter was shown entering the area to pick up the other wounded man.

The battery was loaded into the pod with him and shots were taken in this prone position, while the copter whirled through the air at more than sixty miles per hour. Larsen took advantage of the situation to pan back and forth to show the determined face of the pilot flying his plane and to show the second copter which was flying with him. The fade out came as the plane tipped up

and he could get a shot of the white hospital ship with the mammoth red cross painted on its sides.

Since the laboratory was in the Eastern United States, and there was no possible way to see rushes, the entire crew sweated for nearly two months before word finally came back in the form of an official report.

The exposure on the 35mm Ansco Color had been exact and the content was something entirely new in combat photography. We were all in Tokyo when this word was received.

There was quite a celebration along the Ginza, Tokyo's Broadway, that night. But at four o'clock the following morning, all hands were bound for Korea once more.

EXTENSION TUBES IN CINE PHOTOGRAPHY

(Continued from Page 545)

cause the focal length—imposes certain limitations on all the other specifications. Thus, if sharp focus is to be maintained at all, it can only be done by making compensating alterations to regain a balance of factors.

It would be easy to end the discussion here and simply say, "No, it can't be done." But if one asks, "Can I get a picture with my camera lens extended 1/2-inch, using an appropriate extension tube?" the answer could very well be "Yes." Here we get into the elementary law of optics which deals with what is known as conjugate foci. Here we find that a fixed focus lens of any given focal length can have its object and image reversed—i.e., the size of image and size of object in direct proportion to the distances involved. The most common example of this occurs in the reversal of image and object in the case of projection as compared to photography. In the latter, we have an image on film which is photographed in the usual manner. When projected, the same image, with the aid of a light source, is pushed back through a lens system, similar to the one used in photographing it, and the object is thrown back to pseudo infinity. Were the lens used in projection of the same focal length as that used in photography, and the distance-to-screen the same as the object-to-camera distance, the projected image would be the same size as the original subject.

With this explanation, we establish a foundation on which to advance the principles of conjugate foci as employed in photography with extension tubes. And we might also attempt to clarify the meaning of this term: Foci, of course, is the plural of focus; conjugate, in this instance, means "com-

bined in pairs." Roughly then conjugate foci are the distances from the lens to the image, and from the lens to the object.

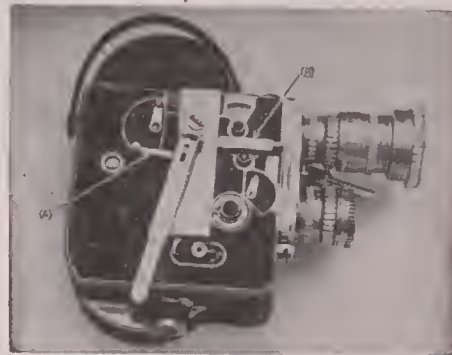
The standard cine camera lens is first considered in focus at infinity. By increasing the distance from lens to film, it then becomes necessary to shorten the distance from lens to object to arrive at the conjugate foci. The greater distance that is selected for the focusing tube, the shorter will be that distance from lens to object. This involves something of a problem in photography, as often the lens is so close to the object that it is difficult to illuminate it. As the distance is increased, the size of the image is also increased.

A few of the fundamentals may be important to the reader; the simple rules which should be applied pertain to the image size. When a lens is extended to a distance which is twice its focal length, and the object is also placed the equivalent of two focal lengths distant, the film image will be the same size as the object. This is almost the limit for short focal length lenses such as used in cinematography, although telephoto lenses require longer extension tubes to retain this proportion.

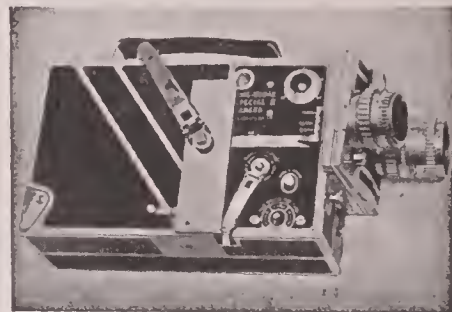
In undertaking cinematography with extension tubes, it is necessary that there be some method of reflex or through-the-lens focusing employed. This is because the area covered by the lens will be very small, and parallax will be a problem. Also, careful focusing is necessary due to the extremely limited depth of field—actually almost nil.

The answer to the second question posed by the filmer referred to in the opening paragraph, viz., "Will use of extension tubes reduce the original f

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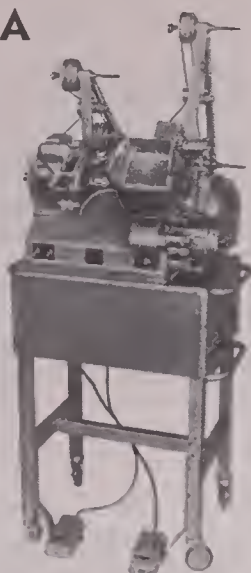
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value of the camera lens?" is yes. The f value of the lens will be changed and it also will be necessary to determine a complete new set of f values for the lens when it is to be used with extension tubes. Below is a mathematical formula for this. In order to keep the explanation as simple as possible, we will consider the use of a 1-inch extension tube with a 1-inch lens. This makes it simpler mathematically to apply the formula for exposure. Here the lens measurements have been converted to millimeters—the 1-inch lens equalling 25mm.:

Distance of lens to image squared
Focal length of lens squared

or

$$\frac{50 \times 50}{25 \times 25} = \frac{2500}{625} = \frac{4}{1}$$

The exposure, therefore, for the tube-lens combination in question, must be increased 4 times. Thus, if an exposure meter reading indicated an exposure of f/8, for the 1-inch lens alone, it would be necessary to set the lens at f/4, when using the lens with an 1-inch extension tube.

If we take the problem of the tube-lens combination suggested by the filmer, i.e., the 1/2-inch extension tube with the 1-inch (8mm camera) lens, the lens to image distance is 1 1/2 times the focal length, which produces an image size equal to one-half that of the object. In this case, however, the distance of the object from the lens must be increased to obtain sharp focus, thus (here again the lens size is changed to millimeters, 1 1/2-inches equalling 37.5mm):

$$\frac{37.5 \times 37.5}{25 \times 25} = \frac{1406.25}{625} = \frac{2.25}{1}$$

... in which case the exposure must be increased 2 1/4 times. The new f value of, say, f/3.5 would become approximately f/5.

In this same example, the distance at which the object should be placed is determined by the following formula:

Focal length of lens plus Focal length
of lens

Magnification (or reduction)

or

$$25 + 25$$

$$0.5 = 25 + 50, \text{ or } 75\text{mm}$$

(converted back to inches equals 3)

Where it is necessary to calculate the revised f value of a certain lens-tube combination to correspond with the lens stop indicated by an exposure meter reading, divide the f number (indicated by the meter) by the sum of the focal length of lens and the extension tube. Then multiply this figure by the focal length of the lens. The result will be the

f stop at which the lens should be set in order to achieve the exposure indicated by the meter.

Many desirable effects can be obtained in both 8mm and 16mm movie making through use of extension tubes in photographing small objects at very close range. This field of cinematography bridges a gap between conventional cine photography and that other extreme known more professionally as photomicrography, which produces motion pictures of objects highly magnified that otherwise could only be filmed with the aid of a microscope of rather high magnification. END.

'MAN WITH 1000 HANDS'

(Continued from Page 536)

Palmer's reasoning carried him along to another logical conclusion: here was a golden opportunity to pioneer in another field, to do a job of enlightened public relations. His script contained not one mention of the sponsor's name.

Director McDougall, his chief cameraman, Bob Martin, and the balance of the Associated Screen location crew lost little time getting to work at Keman. Heavy lighting equipment was brought up to illuminate the interior of the huge hole in the mountain that was to be the main powerhouse chamber. When shooting finished there, they proceeded to Nechako, which was to be the site of the dam. Thence on to Kildala, which was ultimately to be the route of the transmission line, then on to Kitimat itself, where the aluminum smelter and the townsite proper were to be built.

After a good initial start, weather conditions became extremely bad, and unexpectedly interrupted the filming schedule. The shooting log at the end of the job revealed that less than half the total number of days were suitable for photography. Rain, fog and heavy overcast were the principal villains causing the delays, and the total elapsed time for the crew's original departure from Vancouver to their return to that city was seven-and-a-half weeks. Yet the original schedule called for an overall time lapse of not more than three weeks.

A total of twenty thousand feet of 16mm color negative was exposed during the time the ASN men were shooting. This exposed film was flown from the site of operations each shooting day to Vancouver. Arrangements were made by the International Harvester Co. of Canada Ltd. at that point to have a courier standing by to transport the film across the border and to Seattle,

(Continued on Page 564)

Current Assignments of A.S.C. Members

Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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ALLIED ARTISTS

- ELLIS CARTER, "Arrow In The Dust," with Sterling Hayden. Lesley Selander, director.
- HARRY NEUMANN, "Paris Bombshell," with L. Gorcey, H. Hall. Wm. Beaudine, director.
- WILLIAM SICKNER, "Off The Record," (L. Parsons, Prod.) with Barry Sullivan, Dorothy Malone. Harold Schuster, director.

COLUMBIA

- HENRY FREULICH, "Saracen Blade," (Esskay Prods.) (Technicolor) with Ricardo Montalban, B. St. John. Wm. Castle, director.
- CHARLES LAWTON, "Little Giant," with Mickey Rooney, Diane Foster. Richard Quine, director.

METRO-GOLDWYN-MAYER

- PAUL C. VOGEL, "Rose Marie," (Technicolor-CinemaScope) with Ann Blyth, Fernando Lamas. Mervyn LeRoy, director.
- GEORGE FOLSEY, "Panther Squadron," (Anso Color—Wide Screen) with Van Johnson. Andrew Marton, director.

PARAMOUNT

- LOYAL GRIGGS, "White Christmas," (Technicolor) with Bing Crosby. M. Curtiz, dir.
- CHARLES LANG, "Sabrina Fair," (Wide-

screen) with H. Bogart, A. Hepburn. Billy Wilder, director.

- ERNEST LASZLO, "About Mrs. Leslie," (Hal Wallis Prod.) with Shirley Booth, R. Ryan. Daniel Mann, director.

- LIONEL LINDON, "Legend of the Inca," (Eastman color, wide-screen) with C. Heston. N. Maurey. Jerry Hopper, director.

- DANIEL FAPP, "Living It Up," (Technicolor, wide-screen) with D. Martin and J. Lewis. Norman Taurog, director.

REPUBLIC

- HARRY STRADLING, "Johnny Guitar," (Trucolor) with Joan Crawford, Sterling Hayden. Nick Ray, director.

- JACK RUSSELL, "The Outcast," with Dorothy McGuire. Wm. A. Seiter, director.

UNIVERSAL-INTERNATIONAL

- WILLIAM DANIELS, "The Far Country," (Technicolor, wide-screen) with James Stewart, Ruth Roman. Anthony Mann, director.

- CARL GUTHRIE, "Johnny Dark," (Technicolor, wide-screen) with Tony Curtis, Piper Laurie. George Sherman, director.

- RUSSELL METTY, "Magnificent Obsession," (Technicolor) with Jane Wyman, Rock Hudson. Douglas Sirk, director.

- WILLIAM SNYDER, "Black Lagoon," (3-D) with Richard Carlson, Julia Addams. Jack Arnold, director.

- HAROLD LIPSTEIN, "Drums Across The River," (Technicolor, wide-screen) with Audie Murphy. Nathan Juran, director.

- MAURY GERTSMAN, "Tanganyika," (Technicolor, wide-screen) with Van Heflin, Ruth Roman. Andre de Toth, director.

- GEORGE ROBINSON, "Echo Canyon," (Technicolor, wide-screen) with Joel McCrea, Mari Blanchard. Jesse Hibbs, director.

WARNER BROTHERS

- PEVERELL MARLEY, "The Phantom Ape," (3-D, Warner-color) with Karl Malden. Roy Del Ruth, director.

- SIDNEY HICKOX, "Them," (3-D, Warner-color) with Edmund Gwenn, James Whitmore. Gordon Douglas, director.

- WINTON HOCH, "A Star Is Born," with Judy Garland. Gordon Cukor, director.

INDEPENDENT

- STANLEY CORTEZ, "Broncho Apache," (Hecht-Lancaster Prods.; Technicolor, wide-screen) with Burt Lancaster, Jean Peters. Robert Aldrich, director.

TELEVISION

(The following directors of photography were active last month in photographing films for television, or were on contract to direct the photography of television films for the producers named.)

- LUCIEN ANDRIOT, "Life of Riley" show, Hal Roach.

- WM. BRADFORD, "Death Valley Days" and "Annie Oakley" for Flying A Productions.

(Continued on Page 566)



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"MAN WITH A THOUSAND HANDS"

(Continued from Page 562)

Washington. Here, it was expedited through Customs and airexpressed to Hollywood for processing. Wired reports were made by the processing laboratories each day to the location crew at Kitimat to keep them apprised of the quality of their work.

For five weeks, McDougall and Palmer worked in tandem at the Pat Dowling Studios in Hollywood superintending the editing and rough cutting of the film. By this time, the original concept or idea of International Harvester had grown to much larger proportions, and it was then decided, because of the overall excellent quality of the material, to have the main version run for one hour. A half-hour version for general non-theatrical release was also cut, and this will be available at an early date.

Bill Lava, a noted Hollywood musical director, was engaged to write and direct an original musical score for the picture, which by now had been titled "Man With a Thousand Hands." After seeing the film screened in the Pat Dowling Studio projection room, Lava became so impressed with it, he recommended that the orchestra—originally planned to consist of seventeen musicians—be increased to thirty-three to do full justice to the "Man With a Thousand Hands."

To maintain the Canadian flavor of the picture the well-known stage and film actor, Raymond Massey, brother of Canada's Governor-General, was engaged to narrate the script. Massey also appears in a live-action studio sequence introducing the picture and explaining how it had been conceived and had now sprung to full life.

A special screening of "Man With A Thousand Hands" was arranged a short time ago by the International Harvester Company in Chicago for the editor of one of the leading motion picture magazines in the United States. In a letter to Associated Screen Studios, he expressed his opinion of the film in the following manner:

"I want to extend this word of sincere congratulations to your Director and to the men behind the cameras who filled the screen with the most inspiring footage it has been my privilege to witness in many, many years.

"The word 'epic' is trite and often mis-used, but Kitimat is an epic achievement of mankind, and your people have encompassed the whole, great story of this enterprise into a film that I predict will be translated into many tongues and seen and heard by millions."

PRECISION FILM EDITOR

(Continued from Page 538)

right; from it a shaft with a universal joint extends diagonally downward. Just right of the synchronization-control wheel is the speed control knob; from it a shaft extends vertically downward to a sprocket; and from this sprocket a chain runs leftward to the housing of the combined motor and stepless speed control gear. The V-belt drives to the four turntables are plainly visible, and at the extreme left there is a glimpse of one of the relays that control and reverse the drive motor.

The machine can accommodate either open rolls of film, or film on reels. There is no need to take time out and delay proceedings merely to put film on a reel or take it off one—it can be taken either way it comes. Up to 2,000 ft of film in one roll or reel can be accommodated.

The heart of the Precision Film Editor is the shutterless continuous projector.

The lamp used for projection light is actually a sound exciter lamp of 10-v,

7½ amp rating. Screen illumination at 75-w is ample.

From the lamp the light path is through a condenser lens and then through the film. Film motion is, as the pictures show, lateral instead of vertical. After passing through the film the light enters and traverses a 12-side revolving prism. This prism can be described as a disk of optical glass as high as a frame is wide, rotating horizontally behind the film; this disk, however, is not circular, for its rim has been ground to a duodecagon. Each prism face has approximately the same dimensions as one frame; and the rate of rotation is 2 prism faces per frame in the same direction as the film.

On emerging from this rotating 12-face prism the light beam passes through the projection lens and then into an assemblage of three motionless triangular prisms. These latter perform three functions: by their agency the light

(Continued on Page 566)

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ARTHUR E. GAVIN

Editor

Sworn to and subscribed before me this 30th day of September, 1953.

C. K. Buchanan
Notary Public

(My commission expires October 10, 1956)

PRECISION EDITOR

(Continued from Page 564)

beam is deflected upward; the image is erected so it will appear erect on the screen; and, finally, the light beam is deflected forward, above the top of the rotating prism housing, to the screen.

In Fig. 1 the projection lamp and condenser lens are inside the housing nearest the screen. Thence the light path is forward, through the film, toward the operator. Having passed through the film, the light proceeds to and through the rotating prism under the circular housing. On the near or left side of the circular housing can be seen the turret arrangement within which are the projection lens and three stationary, triangular prisms. From the top of this little turret the light beam is projected straight across the prism wheel and lamphouse to the screen.

In operation, this mechanism produces a screen image that is always in frame. The image is free from flicker even at the low projection speed of 2 frames per second; successive frames appear to merge into one another. This of course is what they do, since there is no shutter.

This nonintermittent projection system needs no gate and has none. At no point in the film path does the picture area come into contact with any mechanical surface. Operation is vibrationless. At speeds up to 24 frames per second operation is absolutely silent; at higher speeds some machine noise may become apparent.

Because projection is nonintermittent the film can be brought to full speed from a standing start within one frame without danger of damage; and it can be stopped and reversed in direction with similar rapidity without danger of damage. With intermittent projection, or with a projection gate, this would be impossible.

The soundhead in Fig. 1 is the panel assemblage closest to the operator. The curving hood at the front of the panel houses the exciter-lamp. Since the film motion is lateral, this is a lamp with a vertically-disposed filament. It is of 6-v, 1-amp rating, and powered by a super-audible a-c frequency. The photoelectric cell is inside the drum just to the rear (right) of the exciter-lamp housing.

The comfort of the editor or other operator has been fully considered. The foot pedals in Fig. 2 are cable-connected, and enough slack in the cable has been provided so they can be drawn forward, out from under the machine. For example, the continuity girl might put her typewriter alongside the film editor and these foot pedals under her typing table.

Figure 3 shows the film editor in use. The operator is relaxing comfortably, with his right hand on the synchronization control. The resynchronizing frame counter can be seen clearly just to right of the exciter-lamp hood; on the other side of that same hood is the footage counter and a continuous frame counter. Footage and frame counters can be reset manually to zero at any time.

The Precision Film Editor is available for 16mm as well as 35mm film, and also for 17½mm; but not as yet for ¼-in. tape. A magnetic soundhead has been designed, and can be added to the equipment shown in these pictures. Provision has also been made for using headphones, when desired, in place of the loudspeaker so the equipment can be used in a noisy location without disturbance to others or distraction to the user.

The foregoing article is reprinted with permission from the *Journal of the SMPTE* for March, 1953—Ed.

NEW ASSIGNMENTS

(Continued from Page 563)

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- DAN CLARK, "Favorite Story," Ziv TV.
- EDWARD COLMAN, "Dragnet," Mark VII Prods.
- ROBERT DEGRASSE, "Make Room For Daddy," D.P.I. and Marterto Prods., Inc.
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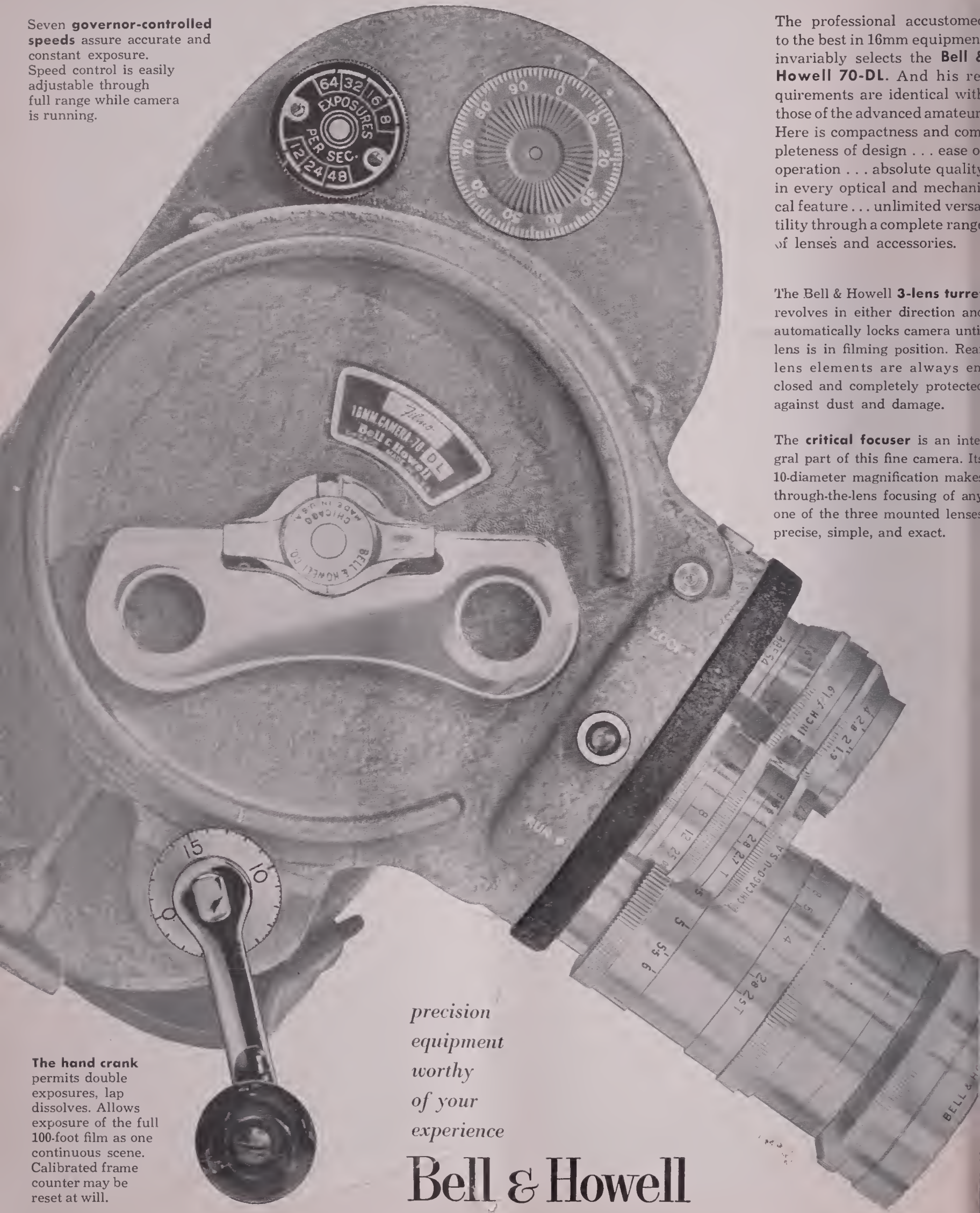
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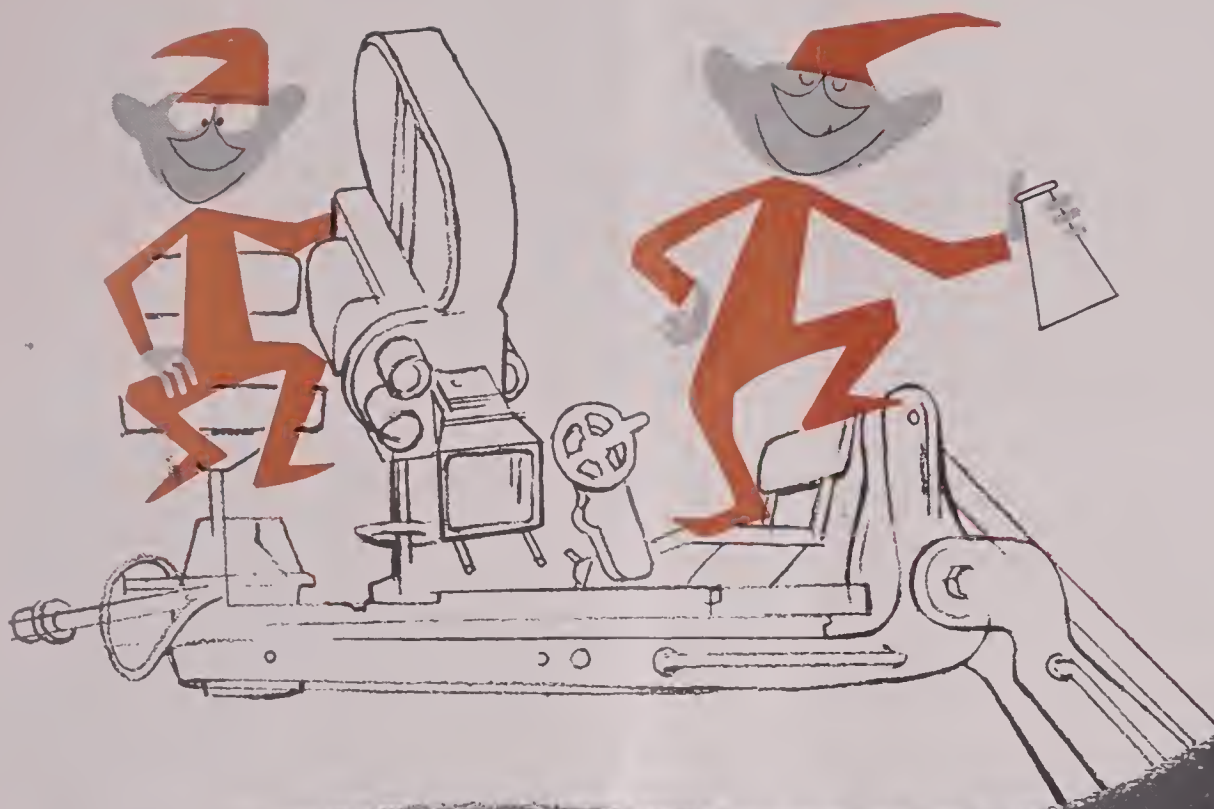


In This Issue . . .

- Is 3-D Dead . . . ?
- Paramount's New Double-Frame Camera
- Electronic Recording Of Pictures On Tape

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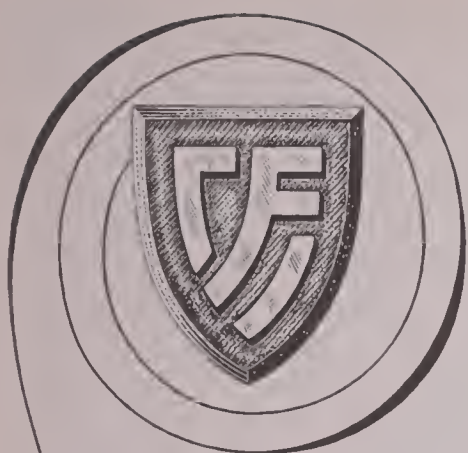


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THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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• 1953

NO. 12

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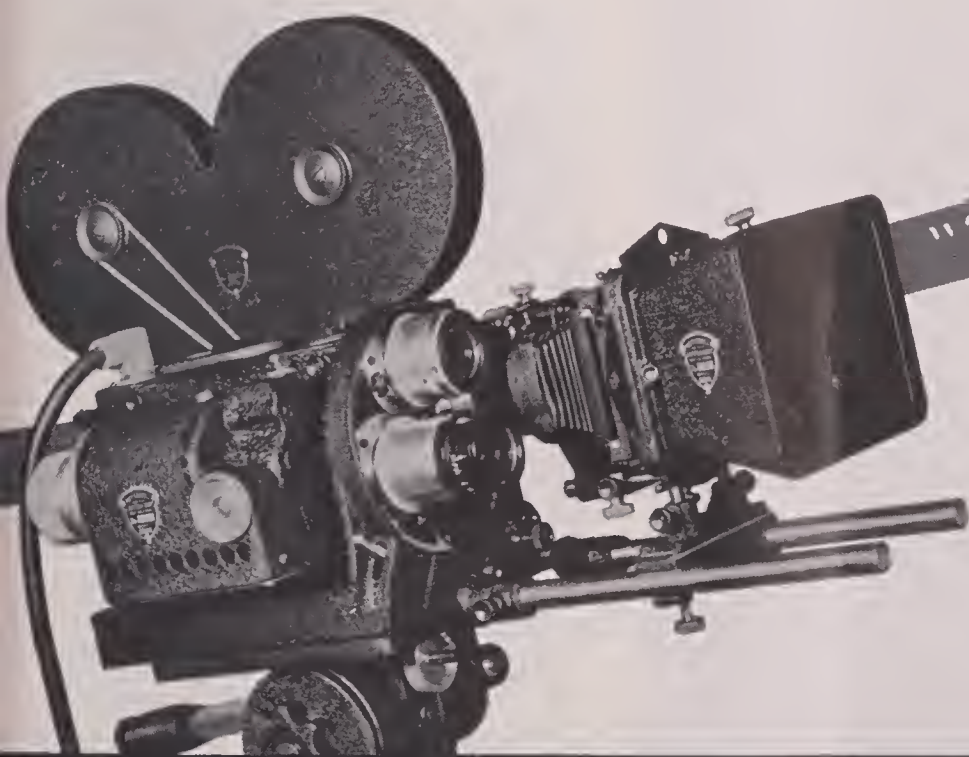
"WHITE CHRISTMAS," current Paramount production is first to be made with studio's new "Lazy-8" double-frame wide-screen camera, pictured here in front of director of photography Loyal Griggs, ASC. Others are (l. to r.) Danny Kaye, director Michael Curtiz (seated) and Bing Crosby. Story about the camera begins on page 588 of this issue.

—Photo by Jack Koffman.

AMERICAN CINEMATOGRAPHER, established 1920, is published monthly by the A. S. C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif. Entered as second class matter Nov. 18, 1937, at the postoffice at Los Angeles, Calif., under act of March 3, 1879. SUBSCRIPTIONS: United States and Pan-American Union, \$3.00 per year; Canada, \$3.00 per year; Foreign, \$4.00. Single copies, 25 cents; back numbers, 30 cents; foreign single copies, 35 cents; back numbers, 40 cents. Advertising rates on application. Copyright 1953 by A. S. C. Agency, Inc.

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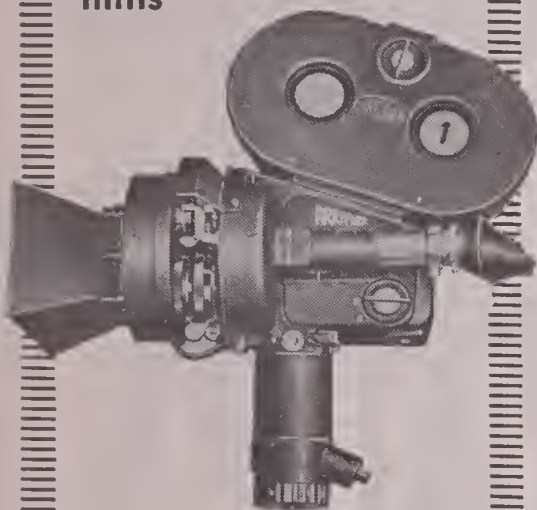
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WHAT'S NEW

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All-directional Dolly—Ceco Distributing Corp., 1600 Broadway, New York City, announces a new lightweight all-directional camera dolly. Tradenamed the "Spider," it is especially recommended for mobile TV units and small TV operations. The Spider dolly does away with the heavy post or elevator for lowering or raising camera, and



uses the conventional tripod, mounted on dolly as shown in illustration.

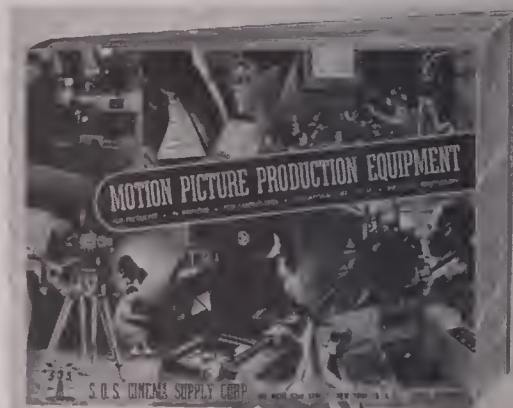
One man operates both the camera and the dolly. After mounting tripod and camera on dolly, cameraman points the arrow on steering wheel in direction he wants to move, and swiftly maneuvers into the desired position. Price of dolly is \$650.00.

New S.O.S. Catalog—S.O.S. Cinema Supply Corp., New York City, known as "The Department Store of the Motion Picture Industry," announces its latest catalog listing more than 1000 different items of motion picture and laboratory equipment.

Entitled *Sturelab No. 10*, the new catalog commemorates 28th anniversary of the S.O.S. organization, and is the largest and most comprehensive of company's history.

Contents, divided into 12 sections, lists 35mm studio and newsreel cameras; camera accessories and lenses; film studio and video lighting equipment; optical, magnetic and disc recording equipment; projection equipment; editing and cutting equipment; laboratory equipment; plus a host of others.

Free copies of catalog *Sturelab No. 10* may be had by any qualified com-



pany or individual in the motion picture or TV profession by writing S.O.S. Cinema Supply Corp., 602 West 52nd St., New York 19, N. Y., and mentioning *American Cinematographer*.

Low-priced 8mm Projector—Bell & Howell Co., Chicago, Ill., announces a new version of its low priced model 253 8mm projector. Except for the color and the structure of its case, new projector is similar to company's model 221.

Noteworthy features include swing-out gate for easy film threading, and a single switch which controls lamp.



motor and rewind. Reel arms hold 400 foot reels, and rewinding is accomplished without switching reels. Film scratching is eliminated by unique design which makes it impossible for metal parts to touch picture area of film. Price is \$114.95 including Federal excise tax.

Film Viewer—Camera Equipment Co., 1600 Broadway, New York City, announces it is distributing a new foreign-made film viewer. The professional viewer is available in two models—one



for 35mm and another for 16mm. Viewer projects image on a large picture screen. Portable and easy to thread, special film path protects against scratching film. Price of 35mm model is \$450; the 16mm model is priced at \$425.00. For more descriptive data please write to the company, mentioning *American Cinematographer*.

Arriflex Repairs—The Camera Mart, Inc., 1845 Broadway, New York City, offers complete repair service for Arriflex cameras, for which they are also distributors. Company carries complete stock of parts for both the 16mm and 35mm models and offers quick "same day" service on parts, etc., for out of town customers.

The Camera Mart recently opened a complete fully-equipped machine shop where the company's line of Camart motion picture and TV equipment is manufactured. Included are facilities for prompt service in camera repairs of all kinds, mounting of lenses, T-stop calibration, etc. Further details may be had by writing the company and mentioning *American Cinematographer*.

Title Letters—Grace Letter Co., 5 East 47th St., New York 17, N. Y., offers a new series of European-made cut-out letters for both amateur and professional movie titles. Letters are available in a wide variety of styles and in sizes ranging from 3/16" in height to 4". Letters are cleanly cut from cork composition material and are ready-gummed on the back for easy application to any surface.

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B&H Pro Equipment—Bell & Howell Co., Chicago, Ill., announces stepped up production on all professional studio and lab equipment and states company now can make immediate delivery on all items.

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ASC's NOVEMBER monthly meeting was second in a series devoted to study of TV films. Guests included Hal Roach, Jr., (above left) who predicted many new assignments for cinematographers in TV film making because of new shows now in planning stage. Jack



Chertok (center photo), producer of "Private Secretary" video films, emphasized importance of cinematographers with imagination in making TV films. Another guest was Charlie Farrell of "My Little Margie" series, shown above with Walter Streng, ASC.



AMONG noted guests at ASC meeting was Robt. Richter (2nd from left above), of Arnold & Richter, Germany, manufacturers of the Arriflex camera. Looking over the new, blimped 35mm Arriflex (l to r) are R. D. Pestonji, Bangkok, Siam; Richter; John Boyle, ASC; and Karl Freund, ASC.



INSPECTING the Arriflex 16mm camera are (l to r) Paul Eagler, ASC; Richard Halpert of Kling Photo Corp., Arriflex camera distributor; and Arthur Miller, ASC. Of special interest was the new 200 foot film magazine which is now available for the 16mm Arriflex camera.

this footage which featured Webb's cameraman, Edward Colman, ASC.

KARL FREUND, ASC, director of photography for Desilu Productions ("I Love Lucy," "Our Miss Brooks") was hospitalized with pneumonia early last month. Taking over his chore temporarily on the "Lucy" show was Nick Musuraca, ASC; while Robert deGrasse, ASC, substituted for Freund on the "Miss Brooks" show. Freund, thanks to the wonders of penicillin, made a quick recovery and returned to the Desilu sound stage December 3rd.

CHARLES G. CLARKE, ASC, addressed the Cinema class of the University of California at Los Angeles last month on the subject of 3-D and CinemaScope photography. Clarke, who has been on assignment in Europe for 20th Century-Fox the past several months, returned to Hollywood latter part of November.

F. C. FUHRMANN is new camera department head at Warner Brothers studios in Burbank, succeeding Mike McGreal. Clarence Schwiebert is his assistant.

THOMAS TUTWILER, ASC, is in Japan photographing the first production phase of Paramount's "Bridges of Toko Ri." Company is scheduled to, return

to Hollywood before the Holidays to shoot interiors at the studio.

JOHN ARNOLD, ASC, MGM's executive director of photography, working with Technicolor engineers, has come up with a method of shooting CinemaScope with Technicolor 3-strip cameras—heretofore not feasible. The negative result is said to excell that obtained when shooting C-Scope with other cameras or with other color film.

ASC MEMBERS are still talking about the special "Dragnet" TV film production which Jack Webb turned out for the ASC meeting in October. Using clips from several "Dragnet" films, special scenes were shot and integrated with



BRAZIL film industry is now giving annual awards, similar to the Academy "Oscars" awarded annually in Hollywood, according to Brazilian cinematographer I. Rozemberg, shown here with "Oscar" awarded him for best documentary made in South America in 1952.

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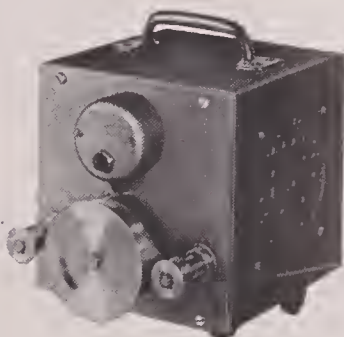
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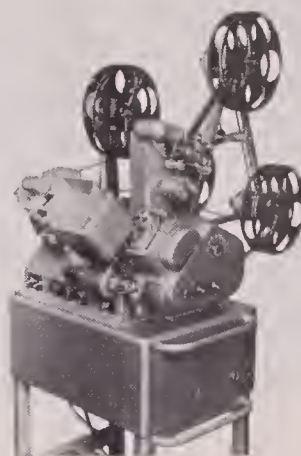
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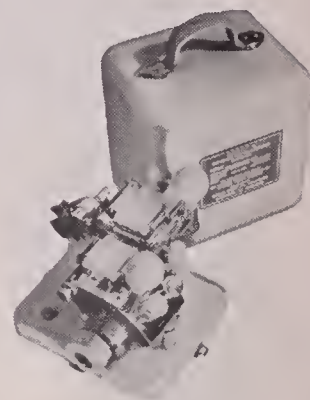
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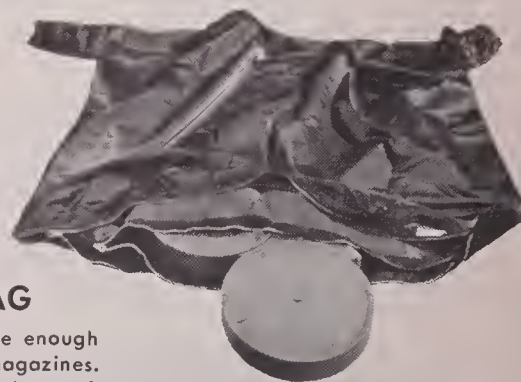
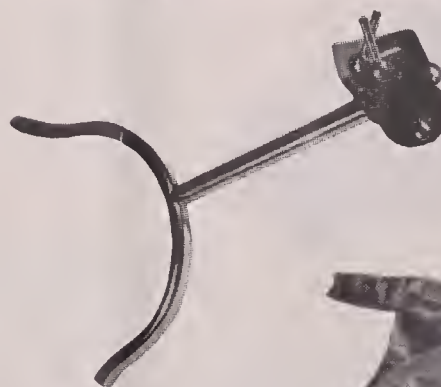
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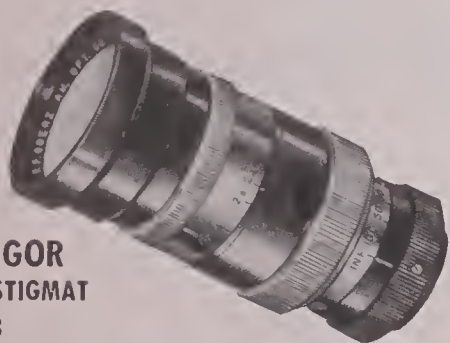


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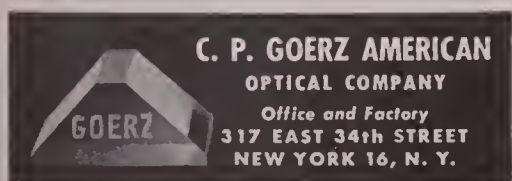


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BOOKS *you'll want to read...*

FILM AND THE DIRECTOR—By *Don Livingston*. Published by Macmillan, New York; \$4.50.

This is a thoroughly professional director's guide, outlining the principles and techniques that are essential for successful movie making on any budget.

The author begins with the basic rules for good picture composition and the all-important techniques for smooth continuity, showing how easily inexperience in either composition or continuity can ruin a picture.

He explains the possibilities and limitations of photographic and sound equipment, different types of staging, movement, lighting, etc.; and suggests ways of making the best, most economical use of each. He discusses the vital differences between stage and movie acting, the problems of movie casting and the use of amateurs.

Each step in professional movie making is clearly defined, with special attention given to editing and the ways in which the good director can make this important phase of film making.

The particular problems of the different types of movies are discussed, including those for television, the new 3-dimensional films, documentaries and educational and special films.

Emphasis is also given to the interlocking roles of all concerned in a production. The author shows how co-ordination and balancing of the varied skills can eliminate unnecessary expense without any sacrifice of artistic value.

An outstanding feature is the wealth of instructive and diagrammatic illustrations.

Anyone aspiring to or already working in motion pictures can gain invaluable advice and ideas from this volume.

NEW SCREEN TECHNIQUES—Edited by *Martin Quigley, Jr.* Published by Quigley Publishing Co., New York; \$4.50.

This volume is a compilation of 26 articles by leading authorities on 3-D, Wide Screen, CinemaScope, stereophonic sound and other new screen processes in motion pictures. It is a clear, concise, profusely illustrated guide for anyone interested, professionally or otherwise, in the new methods of motion picture production and projection.

It is interesting to note that these methods are old in their origin and were thoroughly understood, in the main, decades ago. However, the meth-

ods have only recently been rather violently "sparked" into vigorous life by commendable pioneering demonstrations offered to the public.

The revolution in the film industry brought about by these new technological developments is explained in a preface by the well-known authority, Dr. Alfred N. Goldsmith, and an introduction by Martin Quigley, Jr., editor of Motion Picture Herald.

The principles, methods and procedures involved are examined in detail by the technicians who were instrumental in bringing them to practical theatre use, and by the executives who are now engaged in adapting them to regular motion picture exhibition.

These art forms, if they are to reach their fruition and general acceptance, must be worked out correctly in detail and then broadly crystallized in their practices, it is pointed out. This book is a factual, judicial, and impartial presentation of a new and rapidly changing art.

STEREOSCOPIC TRANSMISSION—By *Raymond and Nigel Spottiswoode*. Published by University of California Press, Berkeley, Calif.; \$6.00.

This is the first book to deal exclusively with 3-D motion pictures. It is a fundamental treatment of the subject, for, as the authors explain in their introduction, "Underlying all systems of image separation there must be a transmission theory accounting for every modification in the shape and position of an object as it is photographically recorded, printed, and finally viewed by the spectator." That theory is given in this book, accompanied by many practical examples showing how actual 3-D can be most effectively photographed and projected.

The book analyzes the transmission of the image from scene to screen, discusses production problems as they are encountered, and aspects of camera and projector design, and shows how the image which is optically transmitted may differ from that which is actually perceived by the audience.

The vague concepts which have been bandied about in recent discussion are in this book replaced by a set of precise and concrete ideas, all of them geared to practical production techniques. The authors show how, by altering constants in the transmission system, an object of known size can be

(Continued on Page 580)

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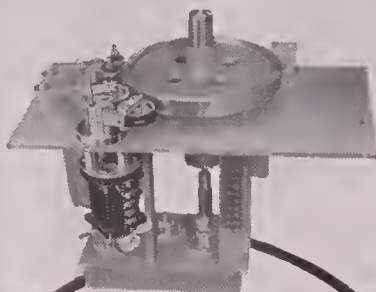
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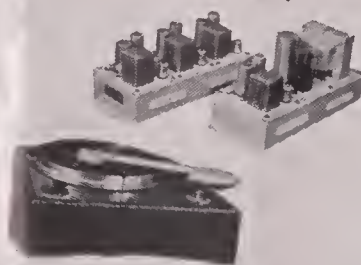
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BOOKS

(Continued from Page 578)

made to appear simultaneously in front of and behind another object. They examine the possibilities of quite new types of set design for the 3-D medium: they explain how this medium, especially when applied to the cartoon film, enables the nearness of things to be altered in relation to reality by bringing perspective, light and shade, and the apprehension of stereophonic depth into vivid conflict with one another.

TELEVISION BROADCASTING — By Howard A. Chinn. Published by McGraw-Hill Co., New York: \$10.00.

Here is a comprehensive, practical guide to the technical aspects of television broadcasting. It gives a view of the equipment, systems, and facilities of the broadcasting station, in studio or field, and authoritative information on the good engineering practices and techniques of operating them.

The book shows television broadcasting fundamentals plainly, then gives a wealth of technical information on cameras, lighting, projectors, pictures and sound recording, transmitters and antennas, etc., plus details of their operation. Also shown are the facilities and techniques of field pickups, intercity program transmission, studio planning, equipment installation practices, and other technical phases of effective television broadcasting.

This volume can be used as a reference by readers already in television and for practical self-training by radio engineering and operating personnel interested in the TV broadcasting field.

PRINCIPLES OF CINEMATOGRAPHY — By Leslie J. Wheeler. Published by Fountain Press, London: American Agents: Rayelle Foreign Trade Service, New York: \$10.95.

This work is essentially directed to the practical cinematographer and should be invaluable to all who are connected with the motion picture industry. It is unique in that it bridges the gap between highly academic treatises and the popular concepts of "movie making" in such a manner that it provides a very great deal of hitherto unpublished information in a most understandable form.

All the processes and equipment used in present-day motion picture production and exhibition are explained in detail and the book is so arranged as to include a short history of each main aspect of the Industry as it occurs in the logical sequence of film production.

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- ... see color rushes within hours after shooting! There's no need to hold expensive casts and sets for days while waiting to see the results of shooting.

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A Division of General Aniline & Film Corporation. "From Research to Reality."

People who know buy Ansco

Great equipment makes great cameramen

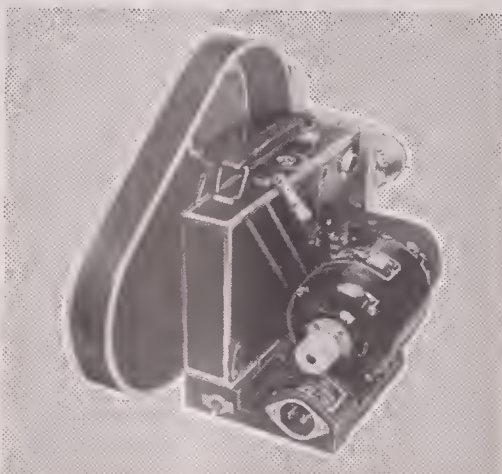
BALANCED TRIPOD HEAD *and* PROFESSIONAL JUNIOR TRIPOD *are the standbys of the masters*

You'll never hear Fritz Kreisler playing on a scratchy fiddle . . . or Louis Armstrong on a \$7 trumpet. Good craftsmen need good tools.

Camera Equipment Company makes, sells, services and rents the world's finest quality TV and Motion Picture Equipment.



More professional cameramen use The PROFESSIONAL JUNIOR Tripod than any other tripod in the world.



SYNCHRONOUS MOTOR DRIVE — 110 Volt AC — Single phase, 60 Cycle. Runs in perfect synchronization with either 16mm or 35mm Sound Recorders. Mounting platform permits removal of magazine while camera remains mounted on motor. Spring steel drive fin coupling prevents damage if film jam occurs.

Knurled knob on armature permits rotating for threading. "On-Off" switch in base. Platform base threaded for 1/4" or 3/8" tripod thread-down screw. Rubber covered power cable with plugs included.



New "BALANCED" Tripod—for the world's smoothest pan and tilt action.

The new "BALANCED" Tripod, perfect for every photographic and video need. The result—a revelation in effortless operation, super-smooth tilt and 360° pan action.

PERFECT BALANCE prevents mishap if the lock lever is not applied. Quick release pan handle locks into desired position. Mechanism is enclosed, rustproof, needs no lubrication. Tension adjustment for Camera Man's preference. Built-in spirit level. Telescoping extension pan handle. We defy you to get anything but the smoothest, most efficient operation out of this famous precision-engineered BALANCED Tripod.

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Complete line of 35mm and 16mm equipment available for rental.

MITCHELL: Standard, Hi-Speed, BNC, NC, 16mm

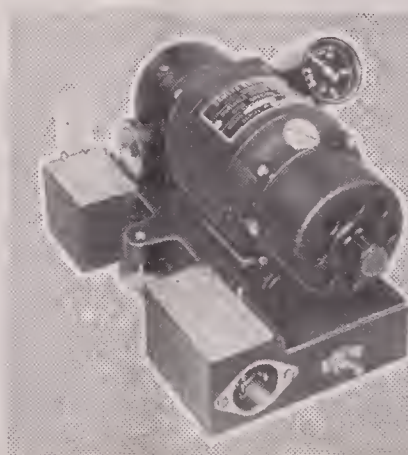
BELL & HOWELL: Standard, Shiftover, Eyemo

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MAURER: 16mm Cameras

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Design and manufacture Lens Mounts and camera equipment for 16mm—35mm and TV cameras.



VARIABLE SPEED MOTOR — 110 Volt AC/DC with Tachometer for EK Cine Special Motor drive your Cine Special with confidence! Tachometer is mounted in clear view of operator. Calibrated from 16 to 64 frames per second. Definite RED marking for 24 fps. Electrical governor adjusts speeds. Steady operation at all speeds. No adapters needed. Motor coupling attaches to camera and couples to motor. Spring steel drive arm shears if film jam occurs. Easily replaced.

We calibrate lenses—Precision "T" Stop Calibration of all type lenses, any focal length. Our method is approved by Motion Picture Industry and Standard Committee of SMPTE. For proper exposure density, it is important that you have your lens "T" stop calibrated. Lenses coated for photography. Special TV coating. Rapid service.

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Scene from "THE ROBE," 20th
Century-Fox CinemaScope Epic

... the world's finest lens

BALTAR

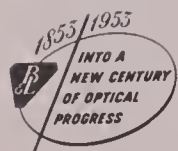


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Bausch & Lomb
Anamorphic Adapter
for filming
CinemaScope

It's only natural that 20th Century-Fox looked to Bausch & Lomb for the optical know-how to achieve "the most significant movie development since sound." 20th Century-Fox and other studios use B&L Baltar Lenses with B&L anamorphic adapter in filming CinemaScope productions . . . for breathtaking brilliance and detail . . . for superb correction and definition . . . for today's finest image quality. Because today, just as when it pioneered America's first ciné lenses, Bausch & Lomb sets the industry's standard . . . in CinemaScope, 2-D, expanded 2-D, and 3-D. For your finest work, order Baltar Lenses from your professional camera manufacturer.



BAUSCH & LOMB CENTENNIAL

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OPTICAL COMPANY



ROCHESTER 2, N. Y.

Is 3-D Dead . . . ?

You may not like 3-D, but lots of people do. Whether it will retain its popularity depends on what is done to alleviate eye discomfort of theatre patrons.

A SURVEY BY THE EDITORS

BIGGEST QUESTION in the motion picture business today is, "What is the status of 3-D?" Is 3-D on the way out? Is 3-D actually *dead*? If so, why?

To get the answers, American Cinematographer's editors undertook a study recently of the problems that have brought about an apparent slacking off of enthusiasm for 3-D among producers, exhibitors and the public. More recently the editors conducted a survey, the purpose of which was to learn if possible what the future holds for 3-D motion pictures.

It is apparent from these studies that Hollywood—and the exhibitors and the public, for that matter—never really gave 3-D a chance.

First, too many Hollywood producers jumped into 3-D film production before they knew technically what it was all about. The first 3-D feature films were put on the screen before the theatres were properly prepared for showing three-dimensional motion pictures. The result was immediate adverse reaction by a great many theatre-goers, most of whom blamed the viewing spectacles they were obliged to wear to see the pictures. Actually, defective glasses were only a minor part of the trouble. Contributing more directly to the viewer's personal discomfort was technically bad photography in some instances, out-of-sync projection, insufficient projection light, and inefficient 3-D screens. Most projectionists in the beginning were totally uninformed on

(Continued on Next Page)



FIG. 1—The gang that started it all! Arch Oboler (dark glasses) directed and Joseph Biroc, ASC (left foreground), photographed "Bwana Devil" in the summer of 1952 with a Natural Vision 3-D camera. This was Hollywood's initial 3-D feature production which started the present vogue for stereoscopic movies.



FIG. 3—No viewer discomfort here! Businessmen watch a 3-D promotional film in 16mm color unfold on screen at recent meeting of Los Angeles Advertising Club. Film was produced by Raphael G. Wolff Studios, Hollywood, which sees big future for 3-D in 16mm industrial, training and educational films.

FIG. 2—Filming Wayne-Fellow's "Hondo" in 3-D in the wilds of Northern Mexico. The Warner Brothers all-purpose camera is mounted on front of heavy-duty mobile carrier and was used thus in shooting most of the picture on location. "Hondo" is rated by many as the production destined to return 3-D to popularity.





FIG. 4—Two types of pola viewers for 3-D films. Early type viewer on right proved source of annoyance to wearers because of small lens area and cardboard frames which wouldn't stay in place. Ideal pola viewer is shown at left, has larger lenses and comfortable plastic frame. Polaroid has since brought out improved reinforced cardboard viewer.

the requirements for good 3-D projection.

Perhaps one of the biggest mistakes—and the one that has had the most to do with general public reaction against 3-D films—is the exhibitor's neglect to properly inform the public in the matter of using viewing spec-

tales. The first Polaroid viewing spectacles made available to the exhibitor for use by his patrons had several shortcomings, chief of which was the cardboard frame (Fig. 4). Generally these spectacles were handed out flat—that is, the temples or side members that hook over the ears were not folded.

ready for use. The result was that the spectator fumbled with the glasses in the darkened theatre and bent the temples, but not sufficiently, with the result they continually slipped off the ears. Had the exhibitor, or more properly, the producer of 3-D features, prepared a short trailer—to be screened just prior to running the 3-D feature—instructing the spectator how to crease the temples of the viewing glasses and warning not to blur the lenses with fingermarks, a great deal of customer discomfort would have been eliminated and there would be greater enthusiasm for 3-D pictures today.

Long after these faults had done what appears to be irreparable damage, viewing glass manufacturers brought out spectacles of greatly improved design. The lens diameters were larger and the frames were reinforced with wire, so that they clung snugly to the head of the wearer. Polaroid Corporation's viewer of this type is now one of the best available; they have also brought out a clip-on type for use by those who normally wear eyeglasses when viewing motion pictures.

Perhaps the greatest annoyance next to the glasses was improper projection of 3-D films. In the beginning, theatres were hastily equipped to show the new type films and attention was chiefly given to installing a non-polarizing screen and the necessary mechanical equipment for operating the two projectors simultaneously and in sync. However this equipment didn't always keep the projectors in sync; there would often be as much as two or three frames difference in the position of the dual films, producing tremendous discomfort for the audience. Films out of sync as much as $\frac{3}{4}$ of a frame is sufficient to render annoying eye discomfort for the viewer.

Ultimately, Polaroid Corporation tackled this problem, as it did that of faulty viewers, with the result it de-

(Continued on Page 608)



FIG. 5—Polaroid 3-D Electronic Sync Monitor, model 21, which automatically indicates any out-of-sync condition in 3-D projection of $\frac{1}{4}$ frame or more and enables projectionist to correct it. When theatres are thus equipped, comfortable viewing of 3-D films can be assured.

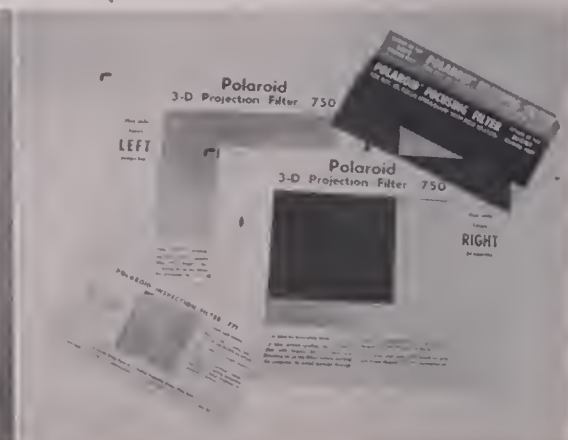


FIG. 6—Polaroid Corp.'s low-cost 3-D electronic sync monitoring device, designed for small theatres. The "package" sells for \$95,

enables projectionist to detect any out-of-sync condition and to correct it, assuring patrons comfortable viewing of stereo films.

"Super 1200" . . . a superb photographic instrument.



16 MM SOUND-ON-FILM CAMERA

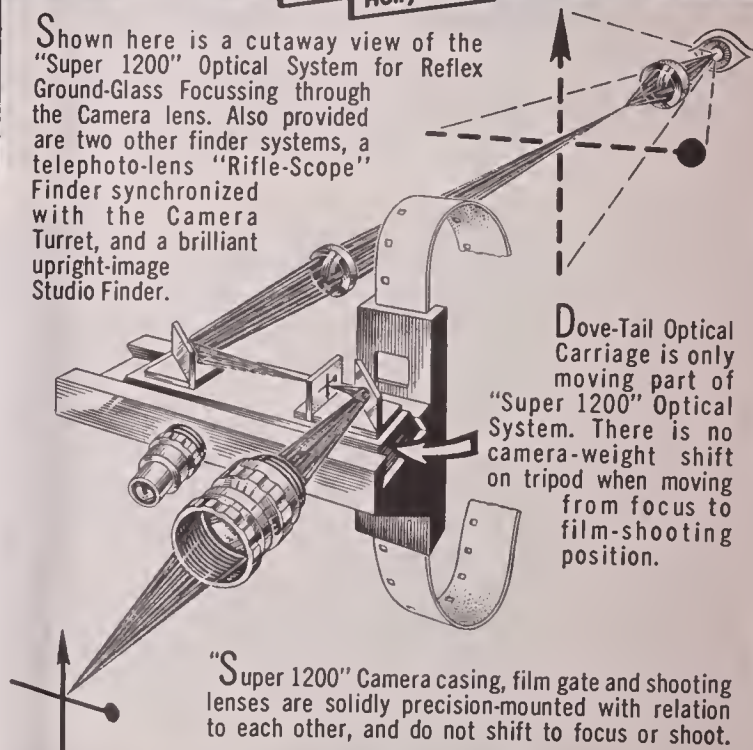
Auricon "Super 1200"

with new Model "CM-74A" features . . .

- During picture exposure, your film runs through the New Auricon "Super 1200" Film-Gate with the light-sensitive film emulsion accurately positioned on jewel-hard Sapphire surfaces, an exclusive Berndt-Bach feature (U.S. Patent No. 2,506,765). This polished Sapphire Film-Gate is guaranteed frictionless and wear-proof for in-focus and scratch-free pictures, regardless of how much film you run through the camera!
- Built-in Electric Camera Heater with automatic Thermostat-Control, provides reliable cold-weather Camera operation.
- Geared Footage & Frame Counter with built-in neon-glow indirect light.
- Two independent Finder systems (in addition to Reflex Ground-Glass Focussing through the Camera lens); a brilliant upright-image Studio Finder, plus a "Rifle-Scope" precision-matched Telephoto Finder.
- Records "rock-steady" picture and High Fidelity Optical Sound-Track on same film at same time, with "whisper-quiet" Camera & Sound Mechanism synchronously driven by precision-machined Nylon gears.
- 400 and 1200 ft. film Magazines available. Up to 33 minutes continuous filming.
- "Super 1200" is self-Blimped for completely quiet studio use.
- Now priced from \$4,652.15 complete for sound-on-film; \$3,755.65 without sound; choice of "C" Mount lenses and Carrying Cases extra.
- Sold with a 30 day money-back Guarantee and One Year Service Guarantee; you must be satisfied. Write today for your free Auricon Catalog...

**Auricon
Hollywood**

Shown here is a cutaway view of the "Super 1200" Optical System for Reflex Ground-Glass Focussing through the Camera lens. Also provided are two other finder systems, a telephoto-lens "Rifle-Scope" Finder synchronized with the Camera Turret, and a brilliant upright-image Studio Finder.



BERNDT-BACH, INC.

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**Auricon
Hollywood**

Line



Paramount's "Lazy-8" Double-Frame Camera

35mm negative travels horizontally in this unique camera having double-frame aperture and said to render wide-screen pictures having greatly improved resolution.

By JOHN R. BISHOP, A.S.C., and LOREN L. RYDER, A.S.C.

As Told to Arthur E. Gavin



FIG. 1—The "Lazy-8" camera being lined up for a shot for Paramount's "White Christmas." Here may be seen the horizontal position of camera with film magazines lying on side and the viewfinder on top of the camera. On normal sound takes, a blimp is used.

THE WIDE SCREEN photographic procedure now being used at Paramount studios in shooting "White Christmas" involves a special camera. Dubbed the "Lazy-8" by studio technicians, the film magazines lie on their side (See Figs. 1 and 2) and the film runs through the camera horizontally; each frame is eight sprocket holes in film length instead of the conventional four. All photography and special effects work on the above-named production utilize this camera and its horizontal-travelling double-frame negative. Paramount adopted this revolutionary new camera as a means of gaining increased picture width without losing any picture quality.

The "Lazy-8" filming system provides a wider picture area on the negative without involving the use of film wider than normal as for instance, 65mm and 70mm, which have been introduced in some wide-screen processes. The "Lazy-8" system utilizes standard 35mm

negative. The negative image area, which is 1.472" x .997" is then optically printed in reduced size to standard 35mm positive in an operation which also turns the image 90°. Thus, in the release print, the picture or individual frame appears as shown in Fig. 5, on 35mm film which runs through the projector in the conventional vertical manner. All prints including dailies, studio copies and release prints are made to standard print size by this same process of photographic reduction. The negative size and placement are shown in Fig. 4.

There are several other features about Paramount's new "Lazy-8" photography that deserve careful attention. First, this is the only new procedure which supplies adequate room for good negative splicing. Also, it is the only new procedure that improves rather than degrades dissolves, fades and special photographic effects work. We use the double-frame negative for all effects work; thus any shortcomings or defects are diminished in the photographic reduction to the positive.



FIG. 2—Front view of the "Lazy-8" camera with blimp removed. Film travels horizontally before lens. Each frame is 8 sprocket holes in film length—equal to 2 standard frames.



FIG. 3—Same camera encased in temporary blimp. New blimp is streamlined, more compact, and lighter in weight, adding to the operational ease of the camera.



FIG. 4—Full size reproduction of the "Lazy-8" camera negative, showing negative size and placement. In the release print, the picture or individual frame appears as shown in Figure 5 at right.

It is well known that the limiting factor in all photographic work has been the area of the negative. In this new method, the effect grain has been reduced by a factor of 2.66:1. Actually, there are three factors that are affected, viz.: grain, resolution, and depth of field. Here the important accomplishment of Paramount's engineers, in addition to using the larger area of negative as compared to positive, is the compromise effected that permits use of as large an area of the negative as feasible without losing depth of field.

Normally, as one goes into the use of longer focal length lenses, there is a loss of depth of field. This is particularly true where 70mm film is used for negative, and where loss in depth of field detracts from the picture quality more than is gained otherwise.

The quality of the picture on the screen is determined by the width of the picture as long as spherical lenses are used. In general, if we increase the screen width by any factor and still want to retain maximum resolution, it

becomes necessary to increase the resolution of the weakest link, so to speak; so if we have a 28 foot screen and we desire to increase its width to 45 feet and retain this resolution, the logical step is to follow the wide screen photographic procedure which Paramount has inaugurated with the "Lazy-8" camera.

There is a great tendency on the part of many people to confuse the artistic shape of pictures with the technique that one uses to gain the artistic shape. In the field of motion pictures, the primary effort, it seems to me, should be to determine what picture shape (aspect ratio) is best for general motion picture entertainment presentation. Having then determined this, the next problem is purely one of mechanics—a technical determination of the best way to produce the desired picture shape. Whereas there has been a



FIG. 5—Full size reproduction of 35mm release print made from the double-frame negative above, left. Latter is optically printed down to area shown, at same time turned 90°. Resultant print gives wide screen picture having greatly improved resolution.

tendency to exhibit pictures in an aspect ratio which is technically dictated, the
(Continued on Page 606)

JOHN R. BISHOP, head of Paramount Studio's camera and film processing departments who modified the old William Fox double-frame two-color camera, converting it to the present "Lazy-8" for Paramount wide-screen motion pictures.

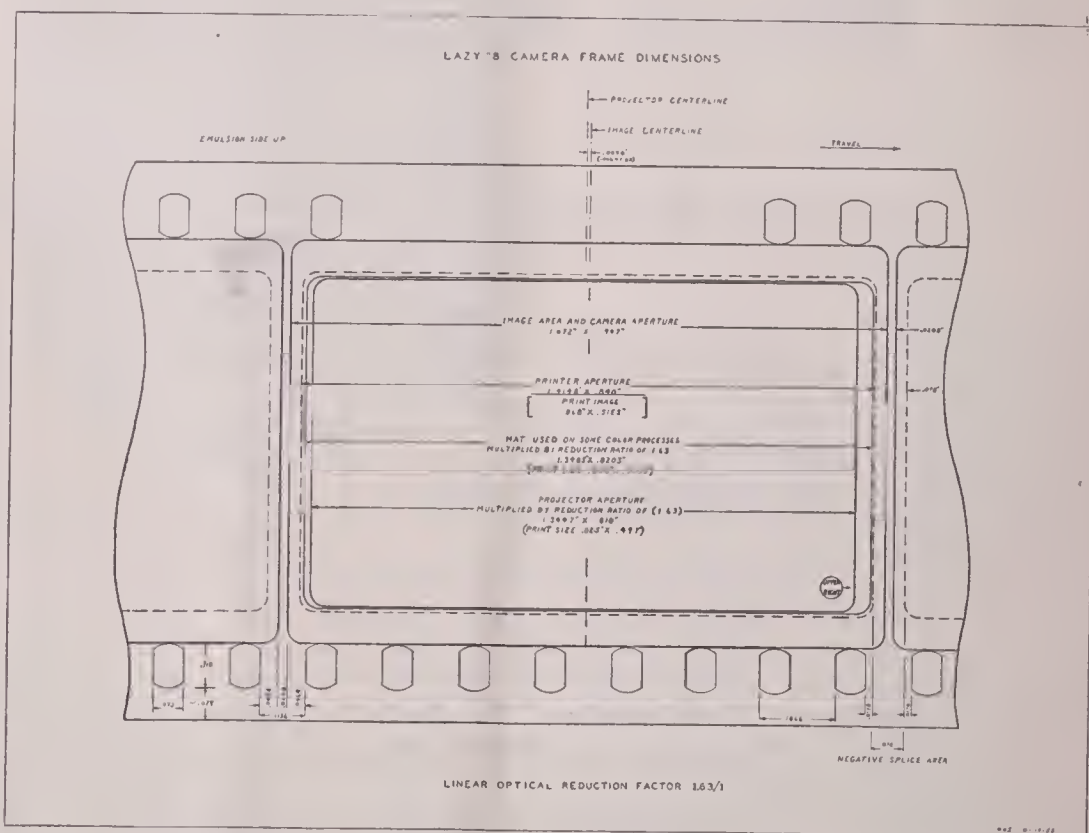
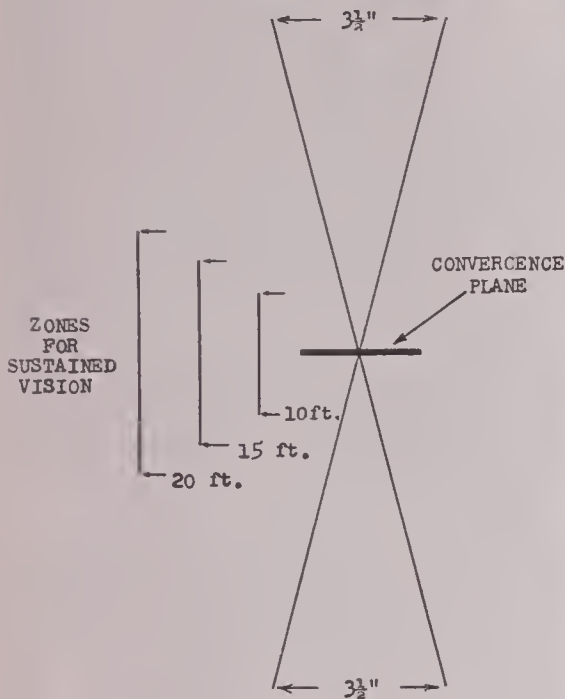
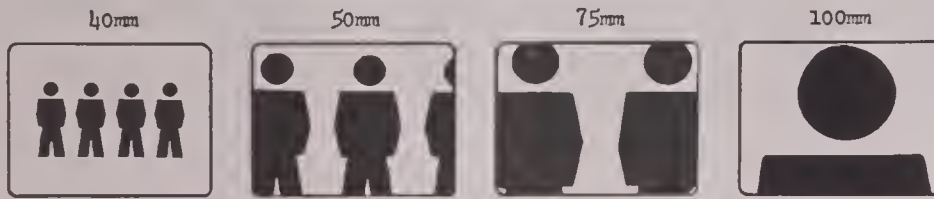


FIG. 6—Schematic diagram of the "Lazy-8" film frame. Camera uses standard 35mm negative, which travels twice normal speed through camera. Relative dimensions of camera and projector apertures are shown.

LENSES



THE CONVERGENCE PLANE is changed with the action of the scene. The matching medium and closeup shots are taken in the same planes using different focal length lenses.

The Story of Natural Vision

— PART TWO —

The technique of photographing 3-D Motion Pictures with the Natural Vision stereo camera.

BY JULIAN GUNZBURG, M.D.

LAST MONTH I explained how the Natural Vision system of 3-D photography was developed, and further explained why three and one-half inches was chosen as the interaxial constant for the Natural Vision cameras. Before presenting the actual technique of photographing 3-D motion pictures with Natural Vision equipment, I should like to present our basic concepts.

A good stereo motion picture is one in which stereo is evident and constant. Like the moving and changing picture, the stereo must also be dynamic. We think of the two cameras—the right-

eye camera and the left-eye camera—as replacing the two eyes. These cameras must, within technical limitations, operate as do the human eyes.

The final picture produced upon the screen represents the pictures seen by the two eyes from their different points of view, and the human eyes that see these pictures are acting merely as viewers or intermediaries in relaying these pictures for final analysis to the brain eye.

Although the human eyes act as a viewer, we must understand how they work in motion picture viewing. As-

suming that the two human eyes are matched in focal length, image size, color, muscle balance and absence of suppression, how do they work as viewers of a motion picture? Because the viewer is seated at least forty feet from the screen, the eyes act as though looking at infinity. In other words, the eyes are nearly at rest, with very little accommodation and convergence required. As stated before, only the central portion of the retina is used in viewing the picture. The eyes wander rapidly over the picture. The periphery of the retina sees only colorless forms and movement, and acts to direct the picture to the central visual field.

In viewing a stereo picture, the two eyes see their separate matching pictures, representing two different points of view.

In Natural Vision, the picture is taken as if the cameras were the human eyes, therefore the pictures are superimposed in the plane of convergence. In this plane fusional movements are not required of the viewing eyes, but as the eyes wander into the background or into the foreground, fusional movements are stimulated.

The foreground objects require bringing the visual axis together, or converging movements; and the background objects require bringing the visual axes away from each other, or diverging movements.

There is a tie between accommodation and convergence. Accommodation, or focusing, is stimulated by convergence and relaxed by divergence. Inasmuch as the screen is at a fixed distance from the viewer, accommodation must be constant, for if it is changed, the result will be a blurred picture.

This brings up the next consideration—the normal limitation of the converging and diverging movement, with accommodation fixed at optical infinity or without stimulating accommodation. After making literally thousands of tests, we adopted as one degree our limitation of background and foreground separations. There were to be certain exceptions, and these we shall bring out in the discussions to follow.

We were, of course, to allow no vertical separations. Technically speaking, the separation of the vertical lines was to be limited to one degree foreground and background, and no separation of the horizontal lines. This terminology became quite confusing, and so before long the practical and ingenious cameramen began calling the

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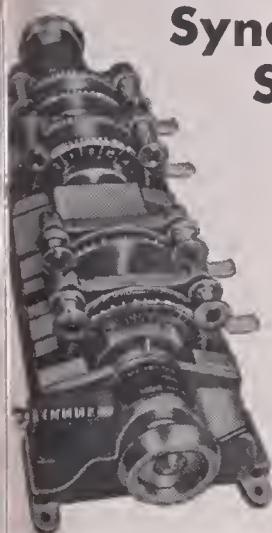
DEDICATED TO BETTER PERFORMANCE



COLLAPSIBLE 3-WHEEL DOLLY

For motion picture and TV cameras. Sturdy cast aluminum. For standard or baby tripods. Additional baby tripod point holders to control spread of tripod legs. Adjustable spring seat. Extra wide rubber wheels. Bronze tie down clamps and other features.

For studio or location. Folds into one compact unit. Can be used with professional or semi-professional tripods.



Synchro-film-ed Synchronizer

Our Exclusive Distributor
NEUMADE PRODUCTS CORP.

Any combination of 16mm and/or 35mm sprockets assembled to specification. Cast aluminum. Foot linear type, adjustable frame dial. Fast finger roller release. Contact rollers adjusted individually for positive film contact. Sprocket shaft slip lock, footage counter, etc.



PORTABLE MICROPHONE BOOM

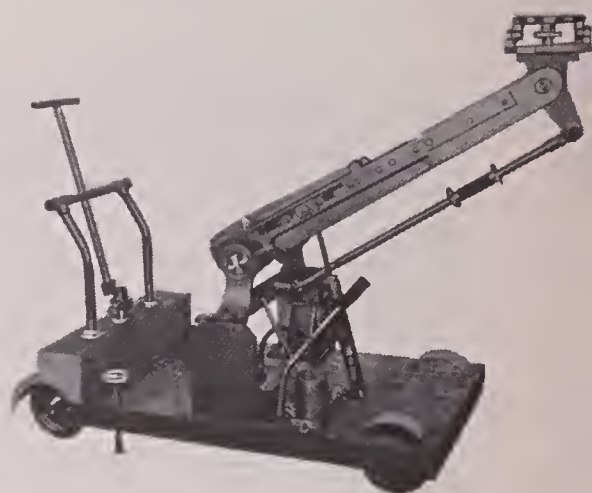
For Studio or on Location. Lightweight — collapsible — for TV and motion picture production. Sturdy construction. Boom telescopes 7 to 17 ft. Rear handle for directional mike control. A remote control permits 360° rotation of the microphone. Operator can push the boom and operate microphone swivel simultaneously.

Extension rods make it simple to operate microphone rotation from floor. Microphone cable hangs outside of boom, preventing cable from tangling with the rotation mechanism. Ball bearing casters, rigid foot locks, pneumatic drop check for lowering the boom, etc.

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TV OR
CAMERA DOLLY

The advanced dolly for instant moveability — streamlined, lightweight, exceptionally sturdy. Nothing to get out of order. Many new advantages for easy operation. Hydraulic lift type for fast upward and downward motion of TV and motion picture cameras.



Swivel seat. Adjustable leveling head. Seat for assistant. In-line wheels for track use. Steering wheel, rigid floor locks. Hand pump or combination hand and motor pump. Easily transported in a station wagon. Fits through a 28" door.

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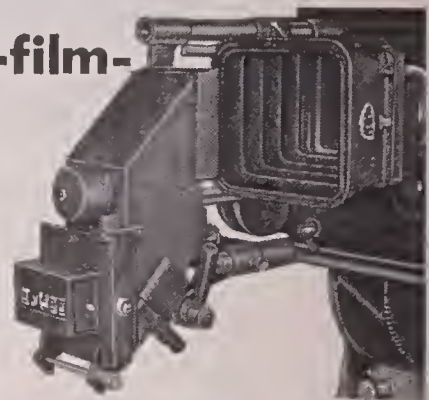
for motion picture, TV cameras.
15mm to 40" focal length.

COMPLETE LINE OF: 16mm, 35mm
cameras, dollies, synchronizers,
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BELL & HOWELL: Standard, Eyemo's, Filmos. MITCHELL: Standard, Hi-speed, BNC, NC, 16mm.

SEND FOR CATALOGUE

Synchro-film- Slate



Pays for itself in production savings on the set. A New Development! Eliminates clap stick synch and slate on set. Mounts on double arm bracket to work with BNC, NC, Standard, 16mm Mitchell and all types of blimps and Geared Head. Interlocks with Sound Recorder.

VARIABLE- SPEED MOTOR with TACHOMETER

for Cine Special or Maurer Cameras

115 V. Universal Motor — AC-DC
Separate Base for Cine Special.
Variable Speed 8-64 frames.
Adapter for Maurer Camera.

INTERCHANGEABLE MOTORS: 12
volt DC Variable Speed 8-64 frames.
115 Volt AC 60 Cycles, Synchronous Motor, Single Phase.

ANIMATION MOTORS: Cine Special, Maurer, Mitchell, B & H Motors, for Bolex and Filmo Cameras.





MOST LIVE ACTION shots for the Carnation Milk commercials on the Burns and Allen Show are filmed on the same sets as used in the show. Here cinematographer Philip Tannura, ASC, (checkered shirt) discusses the commercial story-board with (left to right) Sandra Burns, Gracie Allen, and George Burns. At right, assistant cameraman Sam Rosen focuses the camera for the shot.

Better Photography Means More Productive Commercials

When the same studio that films the TV show also films the commercials, the commercials match the show in photographic quality, with greater selling impact resulting.

By AL SIMON

Associate Producer, "Burns and Allen" and "I Married Joan" TV Film Shows.

SEVERAL YEARS AGO at the request of an important sponsor, I had to threaten to fire a film editor who always sat silently through the running of the first trial composite, absorbed and interested in remedying the slightest defect in the program. When the commercial appeared, he began to smoke and

talk and chat as many home viewers do—completely ignoring what was on the screen until the entertainment began again. "The show is important," was the film editor's explanation. "Who cares about the commercial?"

Well, sponsors do. Yet the most difficult problem in the transition from

motion pictures to television was to convince film technicians used to feature productions that the most important three minutes of the average twenty-nine minutes and thirty seconds of a television program were the commercials.

First, to appreciate the vital importance of the filmed commercial, we must first recognize the basic difference between motion pictures and television—a fact which has been difficult for many motion picture personnel to understand. Although the feature film is designed purely as entertainment and, as such, it extracts an admission price from a patron, television is *not* an entertainment medium. Television is a sales medium designed to sell.

If, in order to gain an audience and to expose that audience to an advertising message, it is necessary to use entertainment, the sponsor does so but he is not primarily interested in making people laugh or cry. He wants to get their attention to sell, or to identify his product with a star, or to get the cumulative effect of a weekly association.

Yet, many sponsors today are committing an error more disastrous than the film editor who talked through the commercials. They are failing to take advantage of the photographic and production skills of Hollywood in preparing their sales messages.

I have watched a program in which a 16mm film made under bad lighting conditions was blown up to 35mm and

(Continued on Page 607)



IN RECOGNITION of the matched excellence in the graphic quality of both the Burns and Allen program and its Carnation Milk commercials, the American Society of Cinematographers last month presented its Award of Merit to cinematographer Philip Tannura (3rd from left). Other photo are Arthur Edson, ASC President; George Burns; and Frederick de Cordova; Gracie Allen, and Fred W. W., Executive-Vice-President of the ASC.

EASTMAN

PROFESSIONAL
MOTION PICTURE
FILMS

W. J. GERMAN, Inc.

Fort Lee

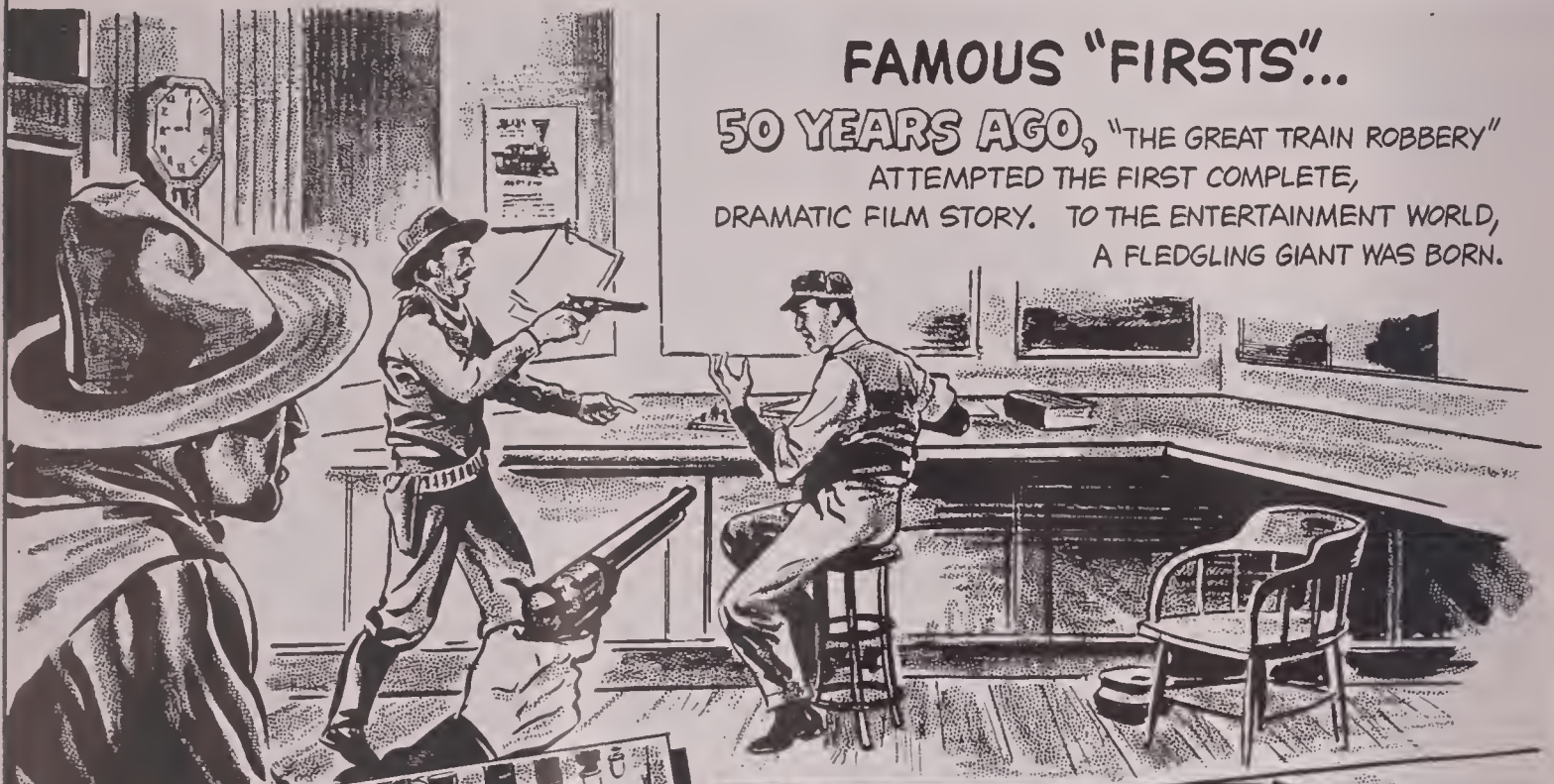
Chicago

Hollywood

SEEING IS BELIEVING!

FAMOUS "FIRSTS"...

50 YEARS AGO, "THE GREAT TRAIN ROBBERY"
ATTEMPTED THE FIRST COMPLETE,
DRAMATIC FILM STORY. TO THE ENTERTAINMENT WORLD,
A FLEDGLING GIANT WAS BORN.



MOVIELAND'S INFANT PRODIGY FOUND
GROWTH AND VERSATILITY IN DEVELOPMENT OF
INDOOR AND AFTER-DARK LIGHTING TECHNIQUES...
USING "NATIONAL" CARBON ARCS...



TODAY...IMPROVED "NATIONAL"

CARBONS CONTINUE TO PAY OFF IN DEEP SET
PENETRATION, BROAD COVERAGE, SHARP SHADOWS
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THE "NATIONAL" CARBON ARC...NOTHING BRIGHTER UNDER THE SUN

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A Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, New York

District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

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UNIQUE AMONG the film organizations and societies in America is the National Honorary Cinema Fraternity, Delta Kappa Alpha: D for dramatic, K for kinematic, and A for aesthetic.

Now, with four chapters (U.S.C., N.Y.U., B.U., and U.C.L.A.), D.K.A. is unique in that it is, in essence, a professional fraternity conducted in an academic environment. It is open to those students regularly enrolled in an accredited university with either a major in cinema or a provable interest in the field, and who meet a set academic standard in their film courses. In most cases evidence of work in film is required. This can be met variously by professional, amateur, or university film production work or in some cases by general photographic experience.

The chief purpose of the fraternity is to provide its members with a point of contact with the film world and to provide an atmosphere for advancement in film work separate from but in cooperation with the universities themselves. In addition to its own program of activities, D.K.A. acts unofficially as a kind of service fraternity to these Cinema Departments.

The most successful single function of the University of Southern California (Alpha) chapter is the Film Classics Series. Each semester D.K.A. conducts a series of twelve weekly film programs surveying the history and development of film style and technique on the international level. Its current series, *Films of Eight Nations**, is being attended by nearly seven-hundred people who either are admitted free when the program is included in their cinema class work, or who have paid \$3.00 for a series subscription.

This series at U.S.C. is one of the most popular of campus functions and draws many members of the faculty and student body who are not engaged in film. Generally these people first subscribe because it is inexpensive entertainment—it figures out to less than twenty-five cents per evening of film. Almost inevitably these people develop an expanded interest in film and re-subscribe as long as they are resident in the area. In effect this series creates an interested film audience which, through increased interest, attends more films in regular theaters. Frequently these people, whose only interest previously had been “Who’s in it?” will stop to discuss the work of a director, cinematographer, or screen-writer. In this way at least, D.K.A. serves the industry.

*Tight Little Island, Torment, My Little Chickadee, Man of Aran, Pinocchio, The Blue Angel, The Overlanders, Wilson, Treasure of Sierra Madre, Distant Journey, Fight for Life, Nature’s Half Acre.



MEMBERS of Delta Kappa Alpha and faculty members of University of California's Department of Cinema plan an exhibit showing style and technique of contemporary animation. Left to right are author Andrew R. Caras, DKA president; Danny Weigand, faculty member; Herb Farmer, assistant head of Department of Cinema; and Warren Brown DKA member.

Delta Kappa Alpha—National Honorary Cinema Fraternity

A professional fraternity conducted in an academic environment, its Honorary Members include distinguished cameramen and others in motion pictures.

By ROGER ANDREW CARAS

In the weekly bulletin issued to the subscribers there is a short discussion of the program for that week, a suggested bibliography of film literature, and a ‘Recommended Film List’ for the whole Los Angeles area. Recently, as an experiment, this list was temporarily discontinued. Judging by the number of requests received for reinstatement of this program feature, this film list had a very definite positive effect. One visitor told the program committee that he was enjoying film more and seeing more of it since he started guiding himself by the list. Such reports, of course, are very encouraging.

At present the U.S.C. chapter is conducting an additional film series on alternate Friday nights for film students and their guests. Unlike Film Classics it is open only to film makers and film students. Members of the industry are always welcome. These functions are free and often last into the morning as members and guests show up with film cans tucked under their arms and offer up rare tid-bits as supplements to the program.

Some idea of the respect that D.K.A. has earned for itself can be gained by an examination of the list of Honorary

(Continued on Page 616)

Electronic Recording Of Pictures On Tape

RCA's Video Tape Recording system unveiled December 1st is destined to change the process of making motion pictures.

By ARTHUR ROWAN

RADIO CORPORATION OF AMERICA, on December 1st, unveiled for the public its system of video tape recording—electronic recording of pictures on magnetic tape—which is destined to affect the future of motion pictures as it will television.

Video tape recording, or VTR, has many advantages over photographic processes and kinescope recording. With VTR it is possible to record electronically on a strip of tape and reproduce therefrom pictures in motion in black-and-white and in color, with no intermediate steps such as film processing and negative printing. "This new development," said RCA's Brigadier General David Sarnoff, "obviously holds great promise for the motion picture industry."

It also has caused some concern among cinematographers and other Hollywood technicians who wonder if electronic picture recording will mean an end to their careers. Some in the film manufacturing business and the film processing laboratories also have speculated on the system's ultimate effect on their business. You see, video picture tape requires no developing or printing; duplicating is a simple electronic step. And instead of the conventional motion picture film, narrow plastic tape, 1/2 inch in width, is used.

Regardless of how revolutionary all this may seem, RCA's engineers say the practical application of VTR to feature film production is probably many years away; there is yet much work to be done in refining and improving the process for this type application. At present, the new and revolutionary RCA system is strictly a tool for television, and it was for this field particularly that it was demonstrated earlier this month at the company's laboratories in Princeton, New Jersey.

Demonstration of picture reception was on two 14-inch screen video receivers of a live transmission in color relayed from New York city by microwave, and of an immediate VTR recorded playback of the same performance. The picture came through on receiver "A" via closed circuit. On receiver "B" appeared the same picture

magnetically recorded on tape and simultaneously reproduced. The picture was picked up from a closed-circuit tube. The black-and-white magnetic picture had all the quality of the closed circuit TV picture.

As for the magnetic picture in color, one could tell there was some difference as compared with the closed-circuit TV color picture, which at this demonstration surpassed in color quality that demonstrated by RCA at NBC's studios in Burbank the previous month. Nevertheless, the magnetic color picture was "commercial." It had lost slightly in color saturation and resolution, and color balance was off a little.

Radio Corporation's timetable for its magnetic picture recording program shapes up about as follows: The December 1st demonstration was in form of a progress report, to let the electronics, television and motion picture industries know how far along they are. It will take about a year yet for

the company to add necessary refinements now in work. It will be about two years before the refined process is ready for practical use in transcriptions and television.

Perhaps a year later, it will be ready for use in the motion picture industry as an instant playback device or auxiliary to motion picture cameras on the set. Use of VTR in this manner would be to speed up production with considerable savings of time and money resulting. Retakes could be made immediately while players were assembled on the set and still in the mood. The need to wait several days for "dailies" in color productions, as at present, would be eliminated entirely.

Finally, about two years later, the process should be available for motion picture production of features, short subjects, newsreels, etc., with another year required to make it ready for production of release prints.

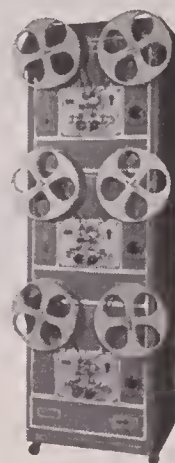
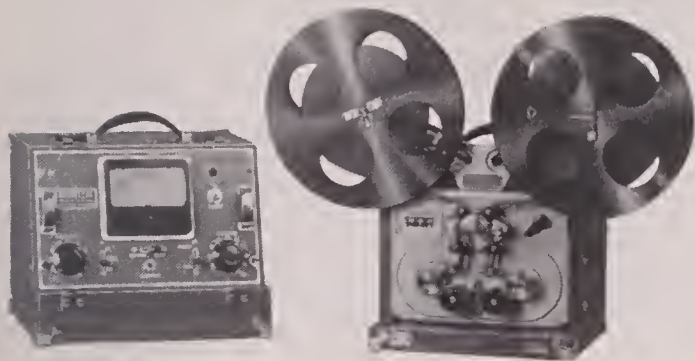
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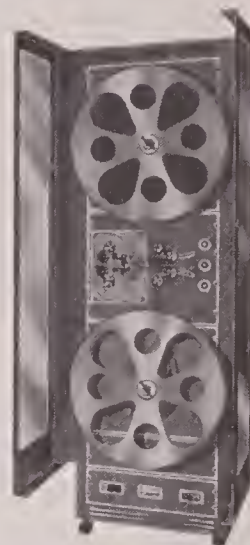
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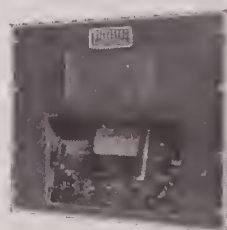
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Closeup Photography With 16mm Single-film Stereo Systems

By ERNST WILDI

Now that it is possible to shoot close-up stereo scenes with single-film stereo systems, producers of industrial and instructional films, and medical schools, doctors and universities, etc., have discovered the fine application of stereo films in their work. Movements of machines, manufacturing processes, and medical specimens can now be shown on movie screens in a more effective way. Family films and travelogues can also be made more complete and interesting through the use of stereo closeups.

The single-film 3-D systems presently on the market, (Bolex, Elgeet, Nord) all have a fixed interocular; therefore, in order to shoot objects closer than

5 feet, a special closeup device is needed. Such a closeup attachment is already available for the Bolex unit and will soon be on the market for the Elgeet stereo lens. If pictures are taken at a distance of less than 5 feet without a closeup device, the separation of the left and right image on the screen would exceed $2\frac{1}{2}$ " and would therefore be uncomfortable to view since our eyes cannot toe out.

The stereo closeup attachment consists basically of two prisms placed in front of the right and left taking lens, causing the image axis to cross at a shorter distance instead of at about 10 feet, as is the case with the basic stereo lens. Consequently, the closeup attach-

ment provides basically the same thing as is done when shooting closeups with a two camera setup, namely a toeing-in of the 2 lenses (or cameras). Since only the Bolex closeup attachment is actually on the market at this writing, our discussion of shooting 3-D closeups is based on the Bolex stereo equipment.

Instead of individually mounting the left and right prisms in front of the two lenses of the 3-D attachment, they are, for convenience, mounted on a rotating disc. This disc is turned by means of a knurled knob, and clicks into three different positions.

One position contains the closeup prism I for shooting pictures from $2\frac{1}{2}$ '



FIG. 1—TO PHOTOGRAPH closeups of flowers and other similar small subjects in 16mm 3-D, you need special closeup lenses, same as for regular filming of closeups. Pictured on this page and at right is the Bolex 3-D closeup attachment with diagrams that indicate method of use.

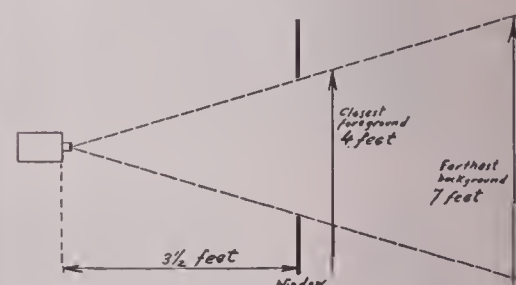


FIG. 2—Showing closeup lens No. 1 in position before camera, with the stereo window set at $3\frac{1}{2}$ feet. (Note relationship of pointer at top of dial with footage marks on second ring.) White area (A) on outer dial ring indicates that all objects should be from 4 to 7 feet behind the window—good distance for filming people in closeup.

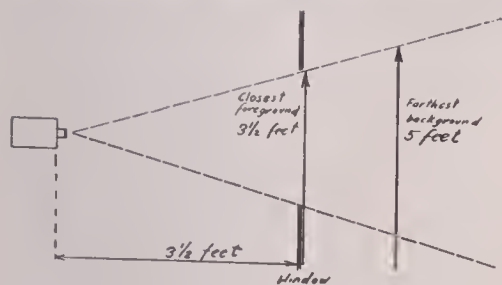
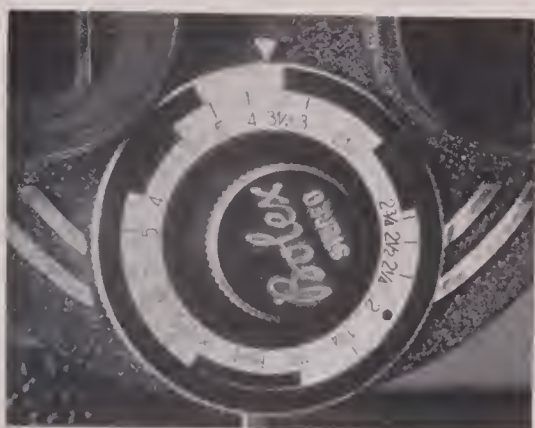


FIG. 3—Closeup lens No. 1 with window at 3 1/2 ft. position. Where nearest object is at plane of window (as in diagram), the farthest should not be more than 5 ft. away.

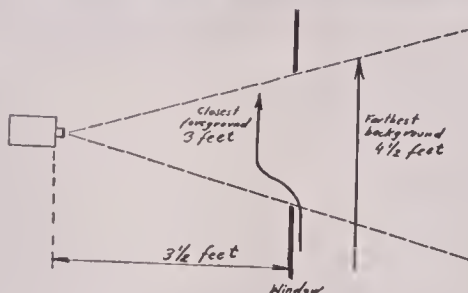


FIG. 4—Lens set same as in Fig. 3. Objects can be partly before and behind window as long as they are in the stereo depth of field indicated by white area on dial (3 to 4 1/2').

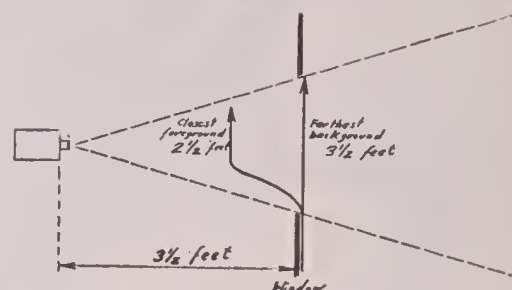


FIG. 5—CU lens No. 1 with window set at 3 1/2 ft. Where background object is at the plane of the window (3 1/2 ft.), closest object should not be closer than 2 1/2 ft.

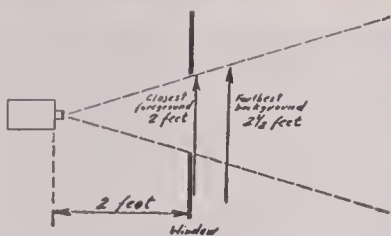


FIG. 6—Now we have closeup lens No. 2 in place, with window set at 2 ft. position. Where all objects are to appear behind screen, they should be placed within the 2 to 2 1/2 ft. area.

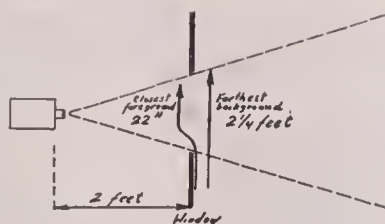


FIG. 7—CU lens No. 2 same as at left. If farthest part of subject is at 2 1/4 ft., the closest part can come through the window and be as near to camera as 22 inches.



FIG. 8—CU lens No. 2 same as at left. Where entire subject is to appear in front of the window, stereo depth of field is only 4 inches—from 24 to 20 inches.

to 7'; the next position, a set of closeup prisms II for shooting pictures from 11 1/2' to 23 3/4'. Finally the third position, employing no prism, is used for shooting pictures from 5' to infinity. Because of this arrangement, the disc becomes part of the equipment and need not be removed (the closeup attachment should be installed on the basic stereo lens by an authorized Bolex Service Center).

Since both the Bolex and Elgeet 3-D attachments are fixed-focus stereo systems, pictures filmed at less than 5 feet are not sufficiently sharp (at least not at f/2.8). The closeup prisms are actually a combination of prism and closeup lens, offering automatically sharp pictures as long as they are shot within the distances listed above.

The disc arrangement eliminates any incorrect or inaccurate placement of the prism, enables you to switch from a long shot to a closeup instantly, eliminates carrying along many different accessories, and the dial which turns the prism is engraved with all the details needed for shooting good stereo closeups. These details are: a) Position of

(Continued on Page 602)



8MM MOVIE MAKER Frank Kallenberg casts the characters for his animated movies using shears and colored paper. Here he is cutting and assembling players and props for his latest film, using drawing at rear as guide. When finished, the parts for each figure are placed in separate envelopes to await call before the camera.

Animated Movies With Paper Cutouts

This 8mm movie maker built his own animation stand with which he animates and films action of figures cut from colored paper.

By GEORGE W. CUSHMAN

ANIMATED CARTOONS have long held a fascination for Frank Kallenberg, Long Beach, Calif., movie amateur, and being an adventuresome cinebug, he wanted to make animated movies with his 8mm camera. But he couldn't draw. Then one day, while cutting out some colored paper, his doodling scissors

fashioned the likeness of a man. "If I can't draw, I can cut," he exclaimed, and the paper man ended up before his movie camera in Kallenberg's first attempt at animation.

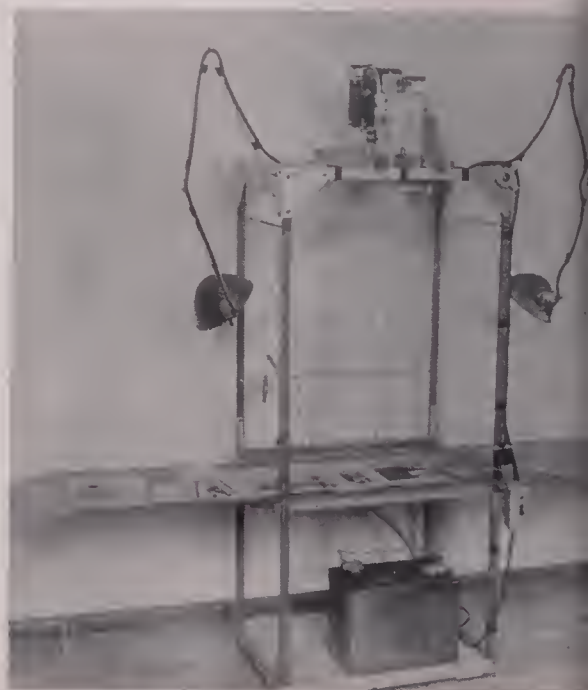
The resulting success of his first animated movie so overwhelmed modest Kallenberg that he made a second film,

and now he's planning his third—with colored paper cutouts cutting capers in front of his 8mm movie camera.

With the experience gained in making his initial animated movie, Kallenberg has learned a lot of tricks about his particular field of activity—tricks you can't learn from books. Only from experience. His intricate, homemade animation stand pictured below proves the point.

While making his first animated film, he soon learned that one needs a rigid piece of equipment designed especially for the job. Professional stands, such as those at the Disney studios, weigh several tons, cost thousands of dollars to build. Kallenberg made his from angle iron, scrap metal, and nuts and bolts.

The four uprights, which are anchored on a sturdy baseboard resting on the floor, are made of angle iron and are securely braced at the top to prevent any movement of the equipment during shooting. The camera, an 8mm Bolex, is mounted overhead with the lens in vertical position. The camera's single-frame release is actuated by a solenoid, which is powered by a 6-volt storage battery mounted on the baseboard. The solenoid is an ordinary automobile starter switch, purchased at an auto supply store. The single frame control button is remotely located at the right side of the stand, next to the light switch. This enables Kallenberg to turn on the lights and press the button that exposes a single frame of film without standing up or otherwise changing position before the animation board.



KALLENBERG'S homemade animation stand is the conventional vertical type, supporting his 8mm Bolex camera overhead. Wide animation table enables assembling large backgrounds. Wires at rear serve as guide

Although the lights are mounted on adjustable supports, once they are set and tested, they are never touched again during the production.

There are two other interesting innovations incorporated in this unique animation stand: one is the wide animation board or platform which extends out at either side of the stand. Here is ample room on which to mount a whole series of backgrounds and thus obtain sequence in shooting with a minimum of cutting. This platform is six feet in width. It is a simple matter to manipulate a background back and forth (from left to right or vice versa) while a character is made to walk, run, or ride in his cardboard Cadillac. Also, since many of the backgrounds often involve intricate set-ups with one or more moving parts, Kallenberg can set up four or five backgrounds in the sequence in which they are to appear in the story and photograph them in sequential order. This eliminates a great deal of editing and splicing after the film is shot and processed.

The second innovation is the series of upright wires, which may be seen in the illustration extending upward from the table and at the rear. The wires are rigidly spaced an inch apart and are hinged so they may be dropped forward across the composition within the filming area taken in by the camera. The purpose of these wires is to serve as *positioning guides* when working with small segments of cutouts during an animation sequence. In working with the movable actors and props, none are fastened to the background and therefore they can become jarred from posi-

tion unless checked frequently. The positioning guides serve this purpose.

Take the action of a man tipping his hat. The jointed figure is laid flat on the base, and his hands, etc., are moved progressively and shot a frame at a time to effect the desired action. In moving the body members, the main body of the actor is often moved also and it becomes necessary to realign it to prevent any "jump" in the finished picture. Here, the positioning guide is dropped down and the figure lined up with it according to guide marks originally placed on it at the start of the sequence. This insures that on the screen, the actor's body remains in position, while his arms, head, etc., move according to script.

Because amateur ventures such as this are rare, there was no experienced individual Kallenberg could turn to for advice, when he started out. What he has learned has been through trial and error. He found, for example, that when he makes a character for his movies with scissors and paper, he often must make two—a right and a left. Here detail must be exact. The left side, for example, must show such details as part of the hair, and a breast pocket in the coat. Similar details must be included in the right-side cutout. Reason for the two is that invariably the character will be shown moving across the scene first in one direction and then the other.

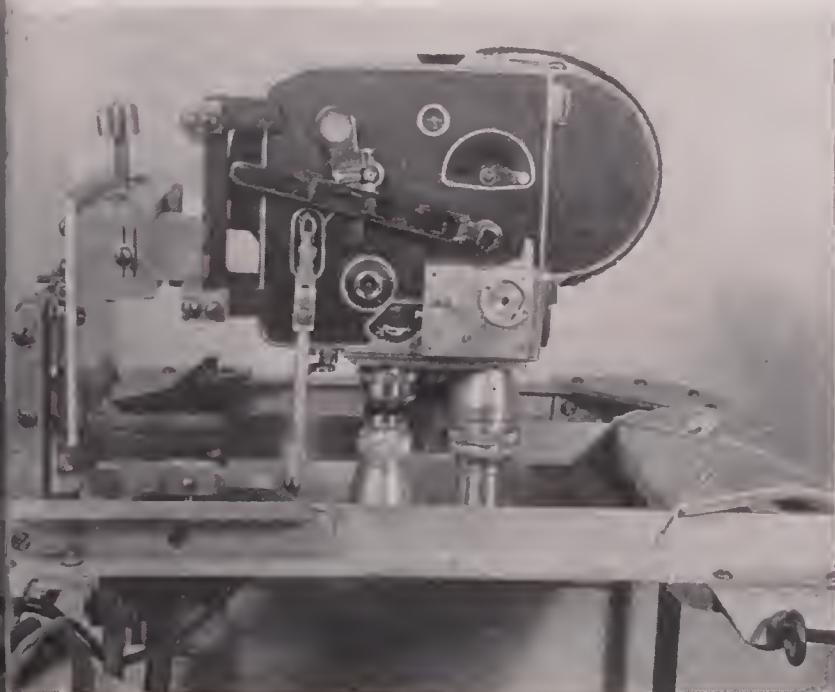
Perhaps one of the most interesting things about Kallenberg's animated projects is the number of players and props he makes for each picture. Each character, animal or prop that moves requires several interrelated parts. Even

the simplest character requires a dozen or more—arms, legs, feet, heads, etc. Some of these parts cannot conveniently be hinged with fasteners or pins. This means the parts have to be segregated and not mixed with those of other characters, etc. Kallenberg solved this problem by placing all parts of a given character, prop, etc., in a separate envelope. They are never removed from it except when called before the camera, and then the parts are promptly put back in the envelope to await the next call before the lens.

About the only real bottleneck Kallenberg has encountered is locating the exact colors of paper he needs. As a result of his continuing search, he not only knows every store for miles around which sells colored paper, but he knows every color they have in stock. Because color plays such a large part in his pictures, production of a sequence is often held up indefinitely pending the location of the paper having the color or tint needed. Sometimes he has to buy a whole unbroken package of assorted colors in order to get a single sheet of just the right tint or color.

Kallenberg's initial animated film, "Yowie," was a short one—less than fifty feet. He sort of made it up as he went along, he says. His friends liked it so well he decided to make another. His second film was "Mule Segarettes," a humorous saga on how cigarettes are made. This ran close to 200 feet and required a year to complete. Not all of that year, however, was spent on clicking the single-frame lever of his 8mm

(Continued on Page 617)



THE BOLEX CAMERA is rigidly supported on a metal framework. Single-frame lever is actuated by a solenoid powered by an automobile storage battery. Instead of moving camera up and down to change size of field or for "closeups," same effect is gained with different lenses.



INTRICATE MOVEMENT OF the parts of figures (arms, legs, etc.) is effected through use of long, sharp pins, which gives more precise positioning of parts than if moved by hand. Here also are shown the positioning guides—vertical wires at rear.

Important Announcement

regarding

American Cinematographer's

3-D FILM FESTIVAL

for

16mm Stereoscopic
Motion Pictures

Due to the increasing number of applications received from film makers in foreign countries who wish to participate in the Festival, and because the previously announced closing date would preclude getting these entries into the committee's hands in time, the Festival Committee announces that

Date For The Festival

has been set ahead to

MARCH 4, 1954

We are delighted that so many foreign film makers wish to participate in this first of stereoscopic film festivals, and in view of this extraordinary interest the Committee believes that an extension of the Festival date is justified.

The extension will also give many film makers in this country who wish to participate additional time in which to complete and submit their film.

Participation in this Festival is open to all makers of amateur, semi-professional, and professional 16mm single-film three-dimensional motion pictures, black-and-white or color. Those whose films are accepted for Festival screenings will receive the distinguished American Cinematographer Merit Filming Award.

Festival Committee

CLOSEUP PHOTOGRAPHY WITH 16MM STEREO

(Continued from Page 599)

the stereo window. b) Range of stereoscopic depth of field.

As explained in previous articles on this subject, in the projection of Bolex, Elgeet or Nord stereo movies, the screen becomes a window with objects photographed appearing either in front or in back of this window. This situation also prevails when shooting with closeup lens I or II.

With closeup lens I, the window is $3\frac{1}{2}'$ from the camera. An object filmed at this distance will appear to be at the plane of the screen. Objects from $2\frac{1}{2}'$ to $3\frac{1}{2}'$ appear to be in front, and objects from $3\frac{1}{2}'$ to $7'$ behind the screen.

With closeup lens II, the window is at $2'$; objects between $1\frac{1}{2}'$ and $2'$ are in front; objects from $2'$ to $2\frac{3}{4}'$ behind the screen. (With the basic lens, the window is at $10'$). The relative position of the window is indicated by colored circles on the dial.

Stereoscopic depth of field has nothing to do with picture sharpness; however, it is necessary that all object appear within a certain range of distances, which can easily be determined with the dial on the Bolex closeup attachment. The closest and farthest objects should lie within the white area of the outer dial when this is brought opposite the corresponding distances of the inner dial. (See illustrations) If this is not done, foreground and background cannot be viewed comfortably together because of too great a difference in image separation. This outer dial is merely an indicator and does not change the characteristics of the stereo attachment in any way.

The examples (Figs. 2 to 8) illustrate the use of the Bolex 3-D closeup attachment. For those who may use other stereo closeup prisms, the following chart of stereoscopic depth of field may be followed for a $2\frac{1}{2}"$ lens separation.

<i>If the minimum distance is:</i>	<i>The maximum distance should not be more than:</i>
48"	84"
42"	60"
36"	54"
33"	45"
30"	42"
27"	34"
24"	30"
22"	27"
20"	24"
18"	22"

The field of view covered at various distances with the twin $\frac{1}{2}"$ lens are:

(Continued on Page 604)

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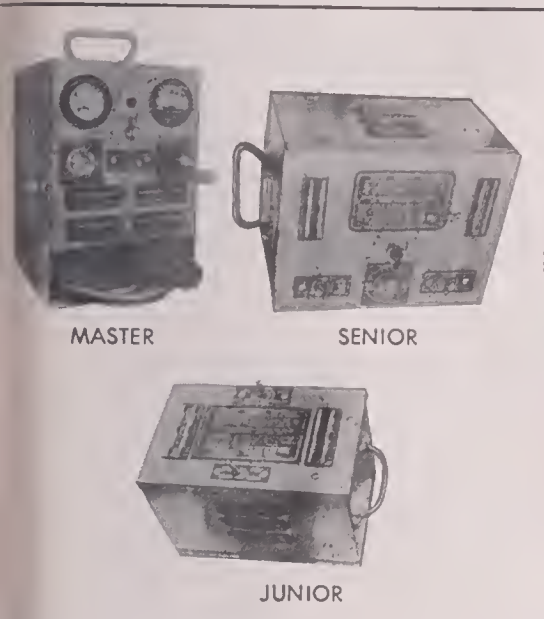
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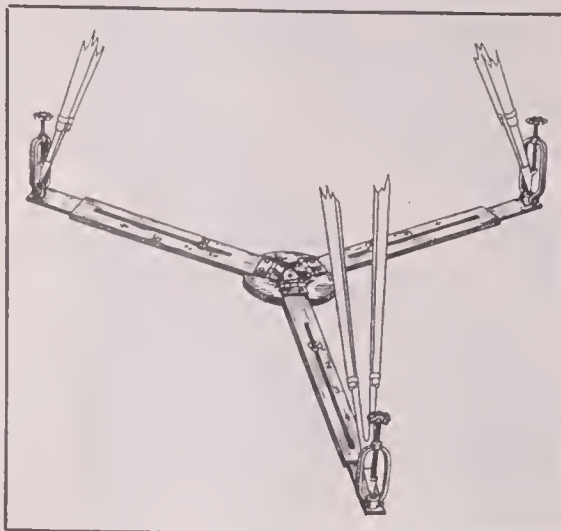
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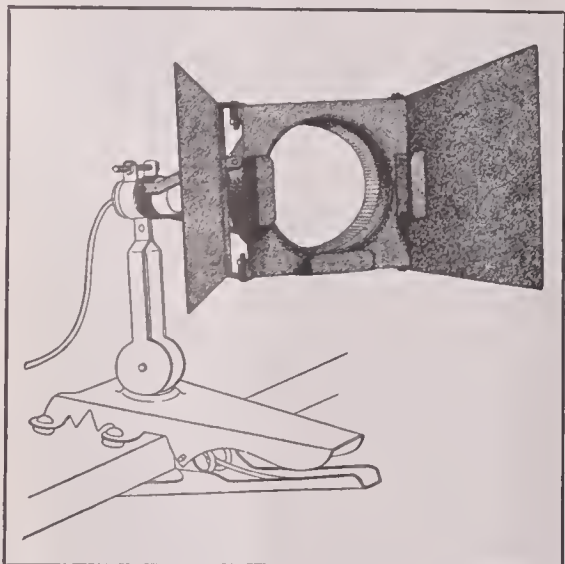
Cut-out center casting absorbs strain on leg hinges — prevents loosening.

Note large finger-grip tightening knobs — large engraved numerals on extendable legs for accurate levelling.

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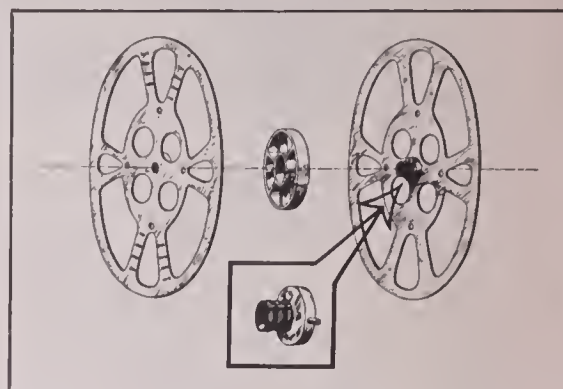
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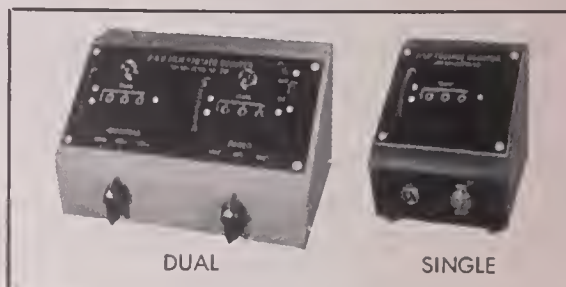
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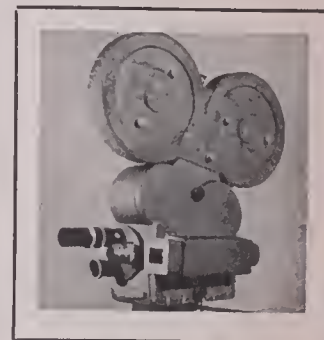
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16
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Distance	Width	Height
10'	33"	43"
7'	23"	30"
6'	19½"	25½"
5'	16"	21"
4'	13"	17"
3½'	11½"	15"
3'	9¾"	12¾"
2¾'	9"	11¾"
2½'	8"	10½"
2¼'	7¼"	9½"
2'	6½"	8½"
1¾'	5¾"	7½"
1½'	5"	6½"

The procedure for shooting stereo closeups is as follows:

1. First decide whether the object to be photographed should be in front of or behind the window. It is best to have in front of the window only those objects which are not cropped by the window frame at any point; in other words, objects which could actually come through the window, without cutting into the frame. In the example below, place the flower either completely behind the window or have the

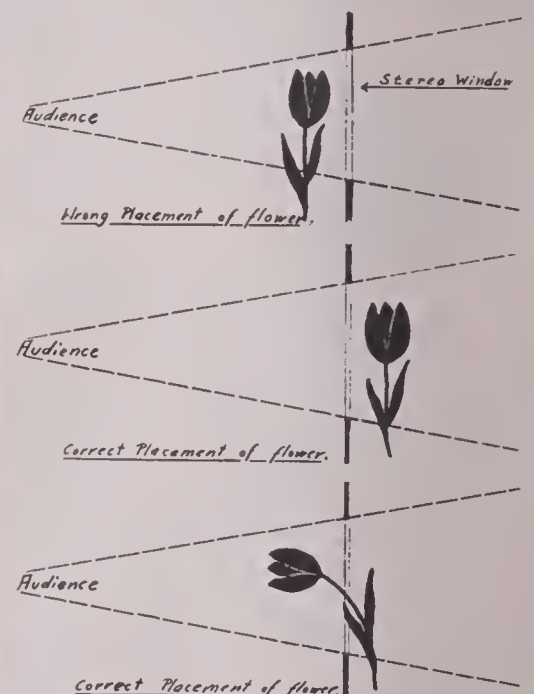


FIG. 8—Showing right and wrong placement of object with respect to the stereo frame.

blossom come through the window, with its stem behind the window. Allowing an object to cut into the window frame, especially on the sides, destroys the realism of stereo. To what extent the illusion is destroyed depends a great deal on the subject. It will be much less severe if the frame cutting is done by a dark, unimportant object than by a well lighted subject, especially the main object. But for best results, do not crop the window frame at all.

2. Photograph the scene in such a way that all objects are within the

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stereoscopic depth of field. As you can see from the chart, the closer you are to subject with the camera, the shallower the depth. For this reason disturbing backgrounds should be eliminated in one of the following three ways:

a) Choose a natural plain background. In an outdoor closeup scene, use a cloudless blue sky as a background. This is especially ideal when photographing flowers. Shoot from a low angle or cut the flower and have an assistant hold it against the sky before the camera.

b) Use backdrops such as plain colored cardboards or pieces of cloth large enough to cover the entire background. These are set up behind the object at a convenient distance. Since they do not contain a distracting pattern, they need not be within the depth of field.

c) Directional lighting. The object is lighted with point sources (spotlights) in such a way that objects in the background are not hit by the light and are therefore subdued on the film.

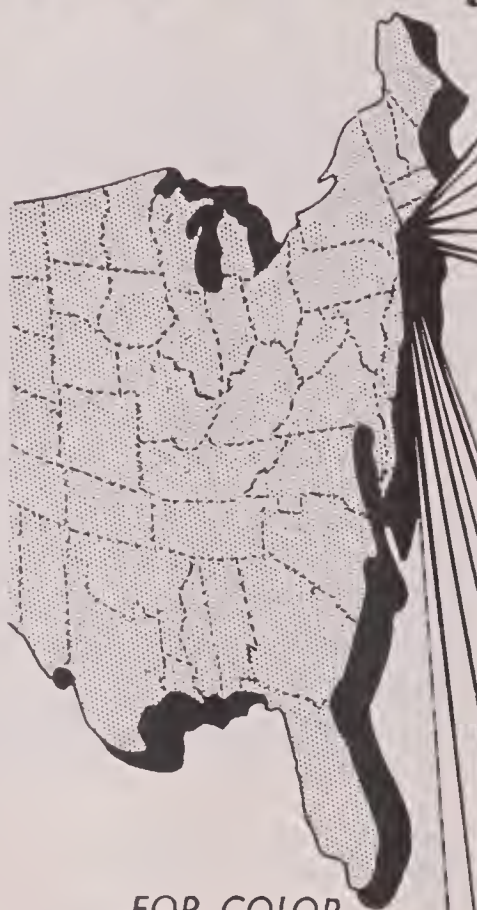
3 Keep in mind that depth in closeups will be somewhat exaggerated; therefore set up the camera in such a way, or at a distance, which will minimize the distortion. The closer the camera the more exaggeration. While this distortion in most cases is not objectionable, it can be noticeable in closeup scenes of faces. The best rule for avoiding exaggerated long noses is to shoot people at not less than 5 feet or take a $\frac{3}{4}$ view rather than full face. (Distortion in depth can be avoided by a stereo system with variable interaxial spacing of less than $2\frac{1}{2}$ " such as is the case for example in Norling's 3-D camera.)

4. Take a closeup reading with an exposure meter and set the lens diaphragm accordingly. For stereo closeups, the diaphragm is set the same as for long shots. When shooting in colors, the effect will be more pleasing if the images are overexposed by $\frac{1}{4}$ to $\frac{1}{2}$ stop.

5. Set the viewfinder in the 15 (16) mm position. Adjust the finder field with the stereo mask and set the parallax correction, according to the conversion chart on the viewfinder bracket. For distances of 34" and more, the regular viewfinder mask with a centric opening is used. For closer distances, the special excentric mask is inserted. The two masks are marked with circles of different colors, the centric mask having a white and blue circle and the excentric mask, one in black; these correspond to the color of the dots on the dial of the closeup attachment. When using the eccentric mask, parallax

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correction should be set at 2 feet.

The same filter adapter and sunshade used on the basic lens can also be used in front of the closeup attachment.

The shooting of stereo closeups requires some careful selection of subject matter, but such efforts will be rewarded by the resulting fascinating stereo shots.

PARAMOUNT'S "LAZY-8" CAMERA

(Continued from Page 589)

policy at Paramount studios has been to select first the most practical picture shape and then the technique. It is our belief that for most screen entertainment, the picture aspect ratio should be under 2-to-1. Paramount, as is now generally known, selected and has standardized upon the aspect ratio of 1.66-to-1. Technically, the "Lazy-8" procedure gives the best quality picture for this aspect ratio. Further studies now indicate that this same procedure will provide the best negative for the ultimate presentation of any picture in any aspect ratio from 1.33-to-1 to 3-to-1.

There is an interesting antecedent history behind the unique cameras we are using in our "Lazy-8" filming procedure. They were not originally designed for the use presently put to but were built back in the late 20's by the William P. Stein Company of New York for the old William Fox "Natural Color" system. The latter was a two-color method and the camera was designed to move film past the gate two frames at a time. Here it was exposed through two lenses, one above the other, and having appropriate filters for the two-color system.

Following collapse of the system, the cameras were disposed of and some were purchased by other studios, by collectors of cinematic equipment, and others. Not until the recent advent of 3-D and wide-screen activity among major studios did the possibilities of these old double-frame cameras come to light as ideal for wide-screen photography. John R. Bishop, head of Paramount Studio's camera and film processing departments, conducted a number of tests with one of the cameras fitted with Leica lenses. The later were found to be ideal for the purpose because they are designed to cover the full area of a double 35mm frame. One of the studio's first steps was to cut out the separation between the twin apertures of the camera, leaving a single aperture 1.472" in width. The camera was reworked and further modernized, and a blimp was built for it so it could be used on the sound stage.

As soon as a second camera could be acquired, it was given similar modification by Bishop and his engineers. Soon afterward the studio made the important pre-production tests that led to the de-

cision to shoot "White Christmas" with the "Lazy-8" cameras, using Eastman color negative. The release prints will be made by Technicolor.

Despite some apprehension that the cameras might soon develop mechanical troubles as a result of operating on their sides instead of in the erect position originally intended, the camera crew filming "White Christmas" has encountered less than two hours delay in 62 days of shooting—a figure considered normal with a standard or new camera not entirely broken in.

Leica-type lenses are being used on the "Lazy-8" cameras; the 85mm lens is comparable in coverage to that of a 50mm lens on a conventional camera; the 50mm to a 33mm; a 30mm to a 23mm; and the 28mm to the wide-angle 17mm.

Loyal Griggs, ASC, who is directing the photography of "White Christmas," is delighted with the performance of the camera. John Fulton, ASC, and Paul Lerpae, ASC, of Paramount's special photographic effects department have also used the "Lazy-8" cameras for the special photography required for the production.

Some indication of the faith Paramount Studios has in its new "Lazy-8" photographic procedure is seen in the fact the company presently has four well-known camera manufacturers designing an improved camera of this type. The studio estimates it will need at least ten, and it is presently inviting other major studios to study the camera and its results with the object of adopting the "Lazy-8" procedure for making wide-screen motion pictures. Paramount's plan is to photograph all its future color productions with this camera.

As for any added cost involved through use of the new camera, it is confined to negative only. The camera uses twice as much film for a given take (because the equivalent of two standard frames of film passes before the lens in each single-frame exposure), and it is therefore necessary to reload oftener; otherwise, use of the camera is as convenient as any standard studio camera.

There is presently in process of completion in the Paramount camera shop, a new streamlined blimp for the "Lazy-

8." The manner in which it was built is rather unique. First the camera was given a close-fitting protective covering, then it was covered with modeling clay. A wax mould was then made from which a replica of the camera plus its covering was cast. Around this replica a perforated steel framework was formed. This was covered on both sides with a layer of rubber about half-an-inch thick. The rubber was then vulcanized to the framework to form the solid, yet slightly resilient, sound-absorbent wall of the blimp.

Prior to designing this blimp, the method of mounting the camera to the base was altered slightly from the original. With the initial "Lazy-8" camera, a hydraulically-balanced vertical column was installed at one side to aid in supporting the camera in horizontal position and to prevent any undue motion that might be induced by the overhanging film magazines. This arrangement was redesigned, and the new mount not only reduces over-all height of the camera but provides a more efficient support.

With wide-screen motion pictures now definitely established as a welcome new improvement in the film entertainment industry, Paramount believes that the new "Lazy-8" photographic system is ideally suited to the production of wide-screen pictures having the fine resolution and definition that good motion picture exhibition demands.

BETTER PHOTOGRAPHY FOR TV COMMERCIALS

(Continued from Page 592)

inserted as the important commercial in a show on which the sponsor spent more than \$40,000 for time and talent.

Where a show is photographically of first quality, unless the commercial measures up to the same standards, the audience will not continue to watch it with equal interest, if they watch it at all. By using inferior workmanship in the commercial, the client himself helps to reduce his audience and to reduce the potency of his advertising message.

Any sponsor's message that does not equal or excel both in audio and video quality the show in which that message appears is failing to take advantage of the very reason the show is being telecast in the first place.

Are advertisers aware of this problem? Yes and no. But not much is being done to remedy the situation. For example, several months ago, a large national agency, in an attempt to improve commercials which were amateurish and of poor quality, called upon us for help. Rather than change the present

16mm Film Achievements



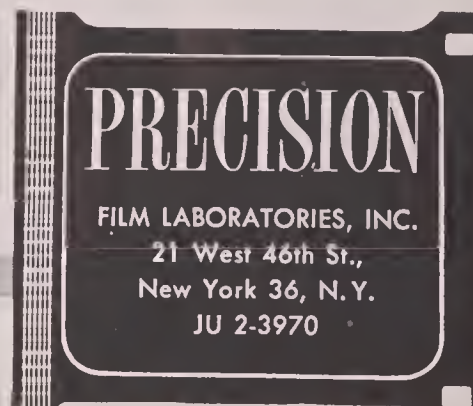
"The Look of Things"

It is a truism that the most perfect printing and projection in the world cannot make up for uninteresting subject matter in a film. But the opposite also holds true. The finer the subject, the more it deserves—and needs—perfect laboratory duplication to set it forth.

This is why we feel that the finest combination of every factor won for the notable 16mm film subject **THE LOOK OF THINGS** the first prize in the Public Relations Category of the recent Cleveland Film Festival. The competition was keen, but this winner was outstanding. Every producer, every film man and, indeed, every individual with an interest in viewing a superior motion picture should make it his business to see this film. The producer would be pleased to arrange for screenings through inquiries directed to us.

Precision Film Laboratories doffs its hat to this unusual example of a fine industrial 16mm color and sound production.

Precision Film Laboratories—a division of J. A. Maurer, Inc., has 16 years of specialization in the 16mm field, consistently meets the latest demands for higher quality and speed.



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locale of filming somewhere in the East, the agency flew a technician out here who watched what we were doing, then purchased similar lighting equipment, made notes of everything he observed and even requested samples of the paint we used on our props! I feel strongly that a sponsor should spend as much time photographing its product as in photographing its star; and that a sponsor is not taking advantage of the media unless he makes every attempt to have the sales message actually superior to the show. This, of course, might not be possible, but certainly it should motivate the filming of every commercial.

One advertiser who believes as we do is the Carnation Company, which shares sponsorship of the Burns and Allen television show. Through Erwin, Wasey & Company advertising agency we have been producing the Carnation commercials on film for the past two years. The American Society of Cinematographers rightfully recognized the importance of carefully photographed TV film commercials this year by presenting cinematographer Philip Tannura its merit filming award for excellence of photography of the Carnation commercials. Tannura also directs photography of the weekly Burns and Allen show.

Following his acceptance of the award, Tannura explained that filming the Carnation commercials is done with the same skill and care that is used in photographing the show. "We use the same film (35mm), lighting, equip-

ment, comparable time, and the same professional staff of technicians to shoot the commercials as are used in filming the show," he said. "Moreover, the commercials are invariably filmed on the same day the show is filmed and often on the same sets. We frequently use both cameras (two are used in filming the show) where any intercutting is to be done. Each commercial, which runs between 1 and 1½ minutes, may involve as many as six cuts."

The size of film used in photographing the commercials is important, too, according to Tannura who says that all TV commercials should be shot on 35mm film instead of 16mm. "This is because a reduction print on 16mm from 35mm negative will give far better results than a 16mm print from a 16mm negative," he points out.

As proof of the effect of the better photographed Carnation commercials, the response to this sponsor's recent television cook book offers, directly traceable to its filmed commercials, has reached an all-time high for a food advertiser.

Unless sponsors who use film take full advantage of all of the skills of the motion picture industry and insist that the same quality go into the commercial portion of their show as demanded for the actual entertainment portion, they are not getting full value received.

There will be a big awakening to this problem some day. It's too bad that the awakening isn't now.

IS 3-D DEAD . . ?

(Continued from Page 586)

veloped two separate remedial devices for the exhibitor—one a low cost package, illustrated in Fig. 6, and the other an all-electronic sync monitoring device (Fig. 5) for the large, first-run houses. Both are as interesting as they are efficient.

Polaroid's activity in this direction is considered one of the most important ever undertaken by anyone to improve the standards of motion picture exhibition. Both devices mentioned above were proved-out in test installations in New York and Boston areas. Following this, Polaroid set up its nation-wide 3-D Technical Service program designed to perfect the projection quality of stereoscopic films in the 4500-odd U. S. theatres which were equipped at that time to show 3-D pictures.

Polaroid's low cost "3-D Sync Unit" pictured in Fig. 6 consists of a sync monitor which detects small mis-synchronization and indicates same to the projectionist by means of variation in strobe stripes visible through the view

window; large sync errors are detected by means of the unique "tell-tale" filter mounted at the top of the unit. Operating at 60 cycles, it plugs into any A.C. outlet. The sync control, used in conjunction with the monitor, permits the projectionist to make relative adjustments in the two projectors in 1/6th frame steps. Along with these two pieces is a Polaroid filter kit. The complete package is priced at \$95.00—said to be less than Polaroid's actual cost. The package is provided at no cost whatever to theatres using Polaroid glasses.

The more refined and costlier sync unit, known as the Polaroid 3-D Electronic Sync Monitor Model 21 (Fig. 5), comprises a phototube housing, a large meter, and the main electronic chassis. In use, the phototube housing is set up in the theatre and pointed toward the screen. The two phototubes act the same as two eyes, and are properly filtered so that one tube monitors the left-eye image and the other the right eye image. The meter unit, which is coupled to the



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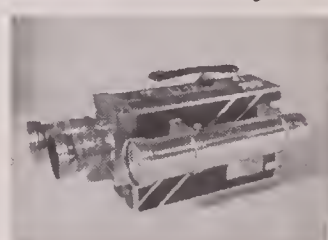
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Template supplied for mounting Finder on magazine. Additional brackets for magazines available at \$7.50 per set.

FRANK C. ZUCKER
CAMERA EQUIPMENT CO.
1600 BROADWAY NEW YORK CITY

phototube unit. shows the direction and amount of error between the two films. Whenever there is a sync error of $\frac{1}{4}$ frame or more in either direction, a buzzer sounds, calling the projectionist's attention to the condition, and continues to buzz until the error is corrected. Correcting sync error is as simple as correcting a framing error—simply by turning a knob on the control until the out-of-sync condition is corrected. The cost of this equipment is in the neighborhood of \$500.00. Wherever either of the Polaroid devices have been installed, and the projectionist fully instructed in their use, 3-D projection has been flawless.

In the matter of photography of 3-D pictures, it is admitted that the producers and particularly their camera crews lacked a great deal of technical knowledge relating to stereoscopy when the first 3-D feature films were undertaken in Hollywood. "Bwana Devil," the first Hollywood 3-D production admittedly suffered from a number of technical errors. However, despite the technical shortcomings of this picture, it has a great deal on the credit side of the ledger. In the first place, it



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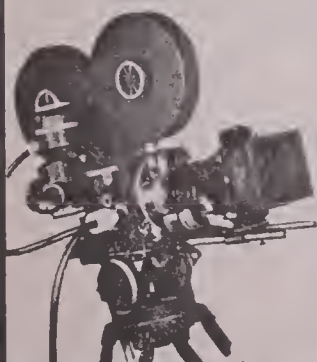
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HAPPY HOLIDAY

May we take the opportunity presented to us only once each year, to extend to all of our wonderful friends and customers the very best wishes for a joyous Christmas Holiday and a successful and prosperous New Year.

And may we ask you to bear in mind that next year as in past years we are at your disposal to render you our usual courteous prompt and efficient services.

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started the 3-D ball rolling in Hollywood. If it hadn't been for "Bwana Devil," stereoscopic theatrical films might still be in the experimental stage—as indeed they were for a great many years, prior to the advent of the stereo film showings at the Festival of Britain and the subsequent production of "Bwana Devil." And secondly, the technical errors of "Bwana Devil" eventually became the research ground for technicians in the major studios who were immediately set to work developing new 3-D cameras on orders from the "front office" following the tremendous box-office success of "Bwana." That the cameras used in filming this picture were basically correct for 3-D was later proven when they were leased to several major studios which subsequently photographed technically improved 3-D feature films with them. In every case, each studio was at the time building its own 3-D camera, based on the individual ideas of its technical and engineering staffs.

There followed, then, an hectic era of 3-D film production which saw every major studio save one enter into an extensive program of 3-D film making. At this time, CinemaScope was getting its baptism in the production of "The Robe" at 20th Century-Fox studios, and Cinerama already was being exhibited publicly in New York and Hollywood. But except at Fox, 3-D films were the big thing among the other majors.

With very few exceptions, the 3-D releases that followed from major studios were technically perfect photographically. Yet by the time they reached the theatres on their release schedules, apathy toward 3-D on part of the public had set in, and exhibitors were taking a panicky view of stereo. And with both the exhibitor and the public showing lessened enthusiasm for 3-D—there was chain reaction clear back to Hollywood.

So what is the picture today? Exhibitor feeling toward 3-D is varied and seldom enthusiastic. And when exhibitors are reluctant to buy, the studios are naturally reluctant to make 3-D films. But a few continue to have faith in three-dimension motion pictures. They believe that good 3-D pictures—with good stories and good casts, and not relying on the 3-D novelty to sell them—will continue to do good business. And there are a couple of recent 3-D releases that prove this, one of them being Wayne-Fellows' "Hondo," about which more later.

As for the Hollywood major studios, here is the present picture of 3-D activity:

Columbia—This studio and its contributing independents have made ten

3-D pictures to date—four still unreleased, including its big color production, "Miss Sadie Thompson." Aside from one 3-D picture currently in production by an independent for Columbia release, studio has no future plans for 3-D. It is likely that it will continue to make other stereo films; it depends upon the stories, which will be considered for 3-D as they come up for discussion. This studio has established the policy that, where possible, it will furnish any of its productions in any format except Cinerama, according to one Columbia executive.

Columbia has two 3-D camera units, and the components for putting a third into operation within 24 hours notice. Cameramen who have photographed the studio's 3-D productions to date are Charles "Buddy" Lawton, Jr., ASC; Lester White, ASC; and Henry Freulich, ASC.

Twentieth Century-Fox—This studio has made only one picture, "Inferno," in three-dimension. Since then, the studio has made a firm decision to make all future films in CinemaScope. Production executives say no further 3-D productions are planned at this time.

Metro-Goldwyn-Mayer—There are no stereo films in production at this studio at present, and none are in the planning stage. However, this does not mean 3-D has been shelved by MGM. Studio has assumed position of watchful waiting—watching boxoffice results of its most pretentious combination 2-D, 3-D "Kiss Me Kate," which, the studio reports, is doing phenomenal business in the 3-D format everywhere. Right now they are pushing "Kiss Me Kate" in 3-D.

As for future, studio will analyze each story as it comes up for consideration and decide at that time in what medium it is to be shot. Company has made only two 3-D pictures to date—"Kate" and "Arena." Charles Rosher, ASC, shot the "Kate" picture in color; Paul Vogel, ASC, filmed "Arena."

The studio has three 3-D camera units.

Paramount—Six three-dimension pictures have been turned out by this studio to date, including those by Pinc and Thomas, Paramount affiliate. No 3-D pictures are being shot at this time and none are in the planning stage. The studio built only one 3-D camera.

R.K.O.-Radio—A total of five three-dimension pictures has been made by this studio—three as yet unreleased. The first was "Devil's Canyon," filmed with a rented Natural Vision stereo camera. The other four productions were filmed with RKO's own 3-D cameras. Information on the number of 3-D cameras which the studio has was unavailable at the time of inquiry. How-

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ever, it was stated that although no 3-D pictures were in the planning stage at present, more are expected and the studio is ready to go with additional 3-D photography whenever it gets signal from the production department.

Of the five 3-D-ers made to date, William Snyder, ASC, shot 3; Nick Musuraca, ASC, one; and Harry Wild, ASC, one.

Universal-International — This studio is one of the stalwarts in 3-D's corner. Although it has produced only four stereo films to date, it has others currently in the planning stage for which starting dates have not been set. All Universal's 3-D pictures have been exceptionally good technically. Credit for this is due the extensive research done by the studio's technicians and engineering staff before starting production on its first stereo film. Unlike some studios, U-I did not plunge immediately into 3-D but studied the stereoscopy technique carefully, made sure its cameras were right. The studio has built five 3-D cameras to date.

Its first 3-D film was "It Came From Outer Space," followed by "Wings of the Hawk," "The Glass Webb," and "Black Lagoon," the latter consisting substantially of underwater photography in 3-D. Cameramen who have shot 3-D

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at this studio include Cliff Stine, ASC; Maury Gertsman, ASC; and William Snyder, ASC.

Warner Brothers—This studio is second only to Columbia in the number of 3-D films made to date—seven in all. Despite the phenomenal success of its latest, "Hondo," the studio has no plans at present for future production of 3-D films. This is probably because it has recently come into the CinemaScope fold, and has announced that all W-B films in future will be made in this medium.

The studio assembled five 3-D camera units (See Fig. 2), and judging from the high technical quality of the photography of "Hondo," it undoubtedly has the finest stereo camera equipment of any studio at this time. The latter picture was photographed jointly by Robert Burks, ASC, and Archie Stout, ASC. Other cinematographers who have filmed 3-D pictures for Warners include Edward DuPar, ASC, Wilfrid Cline, ASC, and Peverell Marley, ASC, who photographed "House of Wax," the studio's initial 3-D production.

It would appear from the above survey report that while 3-D production in Hollywood is more or less stalemated at present, it is far from dead. It is the consensus of many professional film reviewers that "Hondo" will do much to put 3-D back on its feet again. In the writer's opinion, at least, "Hondo" is the best photographed 3-D film to come out of Hollywood. Besides being an excellent picture in all other departments, here is a 3-D-er you can put on your Pola-viewers for, and sit back and watch the picture to the final fadeout without being conscious of the viewing glasses. Another recent 3-D release having similar quality is Universal's "The Glass Webb."

In the meantime, while Hollywood's studios are marking time more or less on 3-D, the medium is receiving considerable attention from other quarters, particularly the industrial film field. Last month the Raphael G. Wolff studios in Hollywood demonstrated its initial promotional 3-D film photographed in 16mm Kodachrome with a stereo unit utilizing Maurer cameras. The demonstration, made before members of the Los Angeles Ad-

vertising Club, promises a surge of activity in 3-D industrial, training and educational film production in the very near future.

In addition to the faults mentioned earlier, which contributed to the slackening off in enthusiasm for 3-D feature films, there is the added factor of the subsequent development and use of still other screen formats—namely wide-screen and ultra-wide-screen CinemaScope. These developments cut into the strides that were being made earlier by 3-D and in many quarters they continue to hold the spotlight.

It is safe to say that 3-D is here to stay, but probably will be employed only for certain productions for which the medium is especially suited. Like "Hondo," "The Glass Webb," and "Kiss Me Kate."

NATURAL VISION

(Continued from Page 590)

horizontal separation of the vertical lines "American," and the vertical separation of the horizontal lines "Chinese." Because stereopsis is present only in the horizontal plane and not in the vertical, vertical fusion movements are poorly developed, and to introduce them causes eye fatigue.

Another question that confronted us was what percentage of the people have binocular vision? Still another question—what percentage will see a stereo picture as a flat picture? And also, what percentage of people might be expected to be actually disturbed or distressed by the stereo picture? Would stereo do harm to any viewer? The answers to these eye questions could occupy a long chapter, and I have only space here to give a summary. Perhaps only about 75% of the population have so-called normal binocular vision; but the percentage of viewers who would be aware of the stereo effect and benefit from it might bring the total percentage to well over ninety percent.

To the viewer with no binocular vision, the stereo picture becomes merely a flat picture.

We discovered also in our research that a certain percentage of people will be uncomfortable in viewing a stereo picture. This group is percentage-wise small—perhaps less than five percent. The ocular discomfort may be caused in the majority of cases by eye defects. A book could be written on this phase alone, but in summary these eye defects could be described as aberrations in the focusing apparatus, abnormalities in fusional functions, imbalance between the eyes in refraction, image size, color balance, and, of course, pathological



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conditions. Suffice to say that if many of these eye abnormalities were corrected, the viewer could be comfortable. If realization and correction of these defects are brought about through stereo viewing, then the stereo picture performs a great service to this group of people. Because of the stimulation to fusional movements and the development of amplitudes, the stereo picture actually becomes a therapeutic tool, and the viewer is likely to become visually relaxed and more comfortable at the end of the picture than when he entered the theatre, and he may be able to carry these visual benefits to other visual tasks.

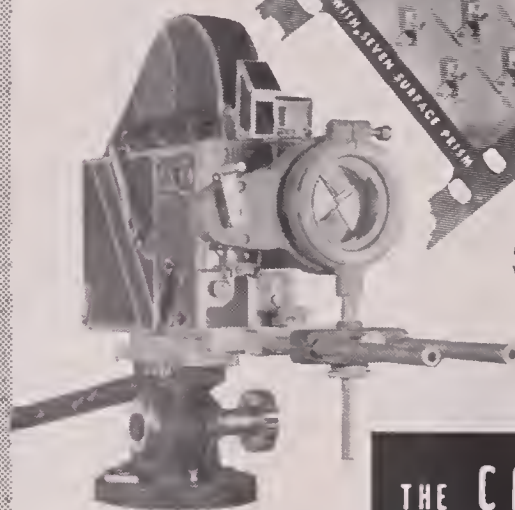
And now that we have covered the camera, and to some extent the viewer, we are now ready to discuss the Natural Vision Stereo System. As stated previously, in Natural Vision several very important things are established. The interaxial (or interocular) is fixed and always constant. The film planes of the two cameras are fixed and matched to each other exactly. The camera shutter mechanisms are matched and in absolute synchronization with each other. The lenses are matched, as are the mirrors and their posts. The synchronized focusing of the two cameras can be changed during the taking of the scene, as can the converging and diverging of the visual axis. (Cont. on p. 614)

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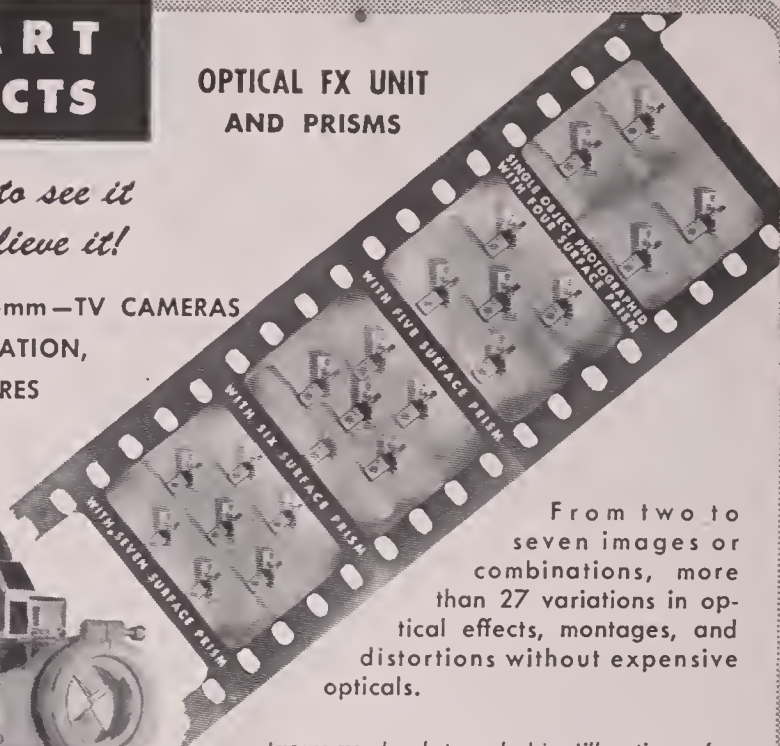
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The film plane apertures being in absolute alignment to each other, and the interaxial being constant, the variables in the system become the location of the plane of convergence, the distance of this plane to the camera, to the foreground and to the background, and the uses of the different focal length lenses.

When the two optical axes of the cameras are directed to a specific object in a scene, these axes cross each other and form what we call the convergence X. The closer the point of convergence to the camera, the greater the angle of the X; and the further the converging point from the camera, the less is the angle of the X. The arms of the X represent the foreground and background separations, and the further from the center of the X, or the point of convergence, the greater the separation; and conversely, the closer the foreground and background to the center of convergence, the less the separation. It can therefore be readily seen that the degree of foreground and background separations is quickly and easily determined for each situation. This concept of the convergence X representing the foreground and background separations was used in computing the limitations of these separations. One degree of separation was established as the limit of separation of objects to be seen by the central retinae for sustained vision. Foreground and background objects that were not to be centrally sustained, or were projected on peripheral zones of the retinae, could be separated more, but this was dependent on the type of object, the degree of focus, the color, the light, and, of course, the interest of the object to the story, etc.

In the separation charts which we prepared for the cameramen, we indicated the foreground and background limitation in terms of sustained viewing and viewing for short durations only. Here I might say a word about the foreground and background separation. The vergence movements of the eyes for distance or motion picture screen viewing is for practical purposes about equal. If accommodation is stimulated, as in viewing foreground objects, then convergence is stimulated and is greater than divergence; and if accommodation is relaxed, as in background viewing, then divergence is stimulated. However, in perspective the foreground is larger and the background smaller, so that in comparing foreground and background objects, it is possible that greater separation of certain background objects can be fused, whereas a comparable foreground larger object could not be fused. However, there are situations where the reverse is true, due to the accommoda-

tive factor induced in fusing foreground objects. And this difference in foreground and background objects is further influenced by the field size with the different focal length lenses.

SEPARATION CHART

Plane of Convergence	Zones of sustained viewing into foreground & background
7 feet	11½ feet
10 feet	21½ feet
15 feet	4 feet
20 feet	6 feet

With the proper selection of lenses, it is possible to so adjust the convergence point that the foreground and background separations are kept within tolerances. That is, when taking the establishing scene with a 40mm or 50mm lens, with the converging plane at, say, 20 feet, this converging distance can be maintained for the medium shot by using the 75mm lens, and the closeup by using the 100mm lens converged at near 20 feet. Not only are the separations controlled by this technique, but also the perspectives are correct, and stereo distortion, associated with sustained fusion of widely separated lines, is avoided.

The variable convergence control has another important function besides separation and distortion control, for it eliminates the concept of the stereo window. In Natural Vision, stereo is as dynamic as is the moving picture itself. The screen becomes space, so to speak, and the audience becomes part of the picture. By changing convergence with the action and interest of the scene, that scene becomes part of the theatre, objects become spacial in feeling, and there is movement of planes as well as of action.

Generally speaking, the convergence plane is at the plane of greatest interest and action, and where the audience would sustain their vision. This is especially true with the longer focal length lenses. With the 40mm and 50mm lenses, it is from the stereo and the separation point of view advantageous to place the converging plane beyond the plane of interest. This tends to bring the background forward, to lessen background separations and avoid miniature perspective.

FOREGROUND LIMITATION CHART

(40 and 50mm Lenses)

Convergence Plane	Foreground Limit
Infinity	25 feet
50 feet	20 feet
30 feet	15 feet
20 feet	12 feet
15 feet	10 feet

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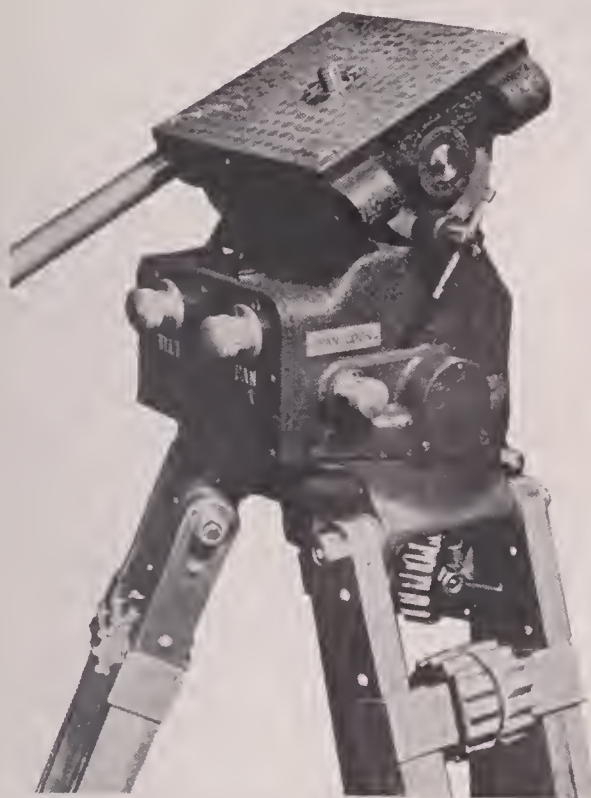
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must be as meticulous in every detail as the photography; rock-steady registered printing is a must, and the two prints must be matched in every detail.

The editing techniques must also be of precision quality so that the frame-for-frame synchronization and matching are maintained.

And lastly, if the projection of the stereo picture is not meticulously carried out, the quality of the picture will suffer. Good solid, perfectly-matched projectors and lenses, and perfect image alignment are necessary to maintain this quality. The synchronization must be positive and frame-for-frame. The light from each projector must be matched and maintained.

The reflective type screen must be of the highest quality, and the projection polaroid filters carefully protected against dust and heat. The latter must be in precise alignment with the Polaroid viewing glasses of the audience. As can be seen, there are many links in the chain from the taking of the Natural Vision picture to its projection in the theatre, and the chain is only as strong as its weakest link.

In conclusion, I might state that the dream of Milton Gunzburg of making motion picture photography real has come true through Natural Vision. To date Natural Vision has completed nine

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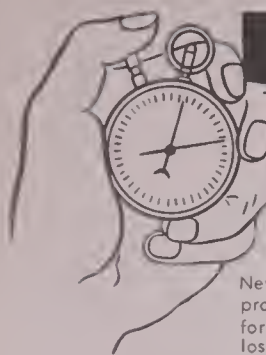
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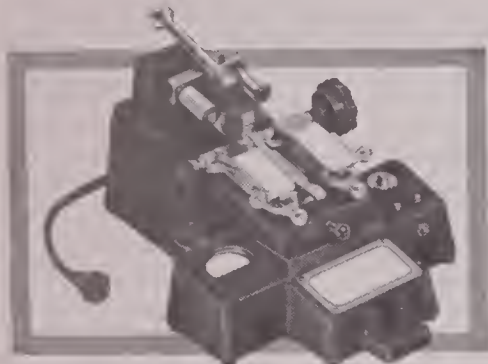


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feature-length motion pictures. When they have been properly projected, each has fulfilled our requirement of being visually comfortable. Each successive picture shows progress in technique and stereo quality, and with each new picture we are more certain of the many advantages of what we and others have come to know as the Natural Vision system.

All nine pictures have been produced without imposing serious limitations upon the producer, the director, the actors and the technicians—more or less as normal 2-D pictures have been photographed for years—and the Natural Vision cameras have operated with the same facility as a 2-D single camera. The cameras have always been ready and have not held up production. Hardly a scene had to be reshot from a stereo point of view.

Although the past literature on stereo and the current thinking of many experts deriving their knowledge out of this past literature has been volubly against "variable convergence" such as is used in Natural Vision, and volubly for the former "variable interocular," the proof after nine feature length mo-

tion pictures is "in the pudding," and it is now possible for the motion picture industry to compare, scene by scene, pictures shot in both systems. My brother and I are pleased to see that whenever such comparisons are made the major studios move more and more toward acceptance and appreciation of the system we have introduced.

Although in the beginning of our development we were convinced that we had made a unique and inventive contribution to the art of stereo photography. The United States Patent Office has only recently concluded otherwise. It appears at this late date that there is little in optics that is patentable, and much indeed that is now in public domain, including our so-called Natural Vision system, which is accordingly open and available to all those who wish to use it. It is in the spirit of disclosing what we believe are the essential truths of our system that this article is written. We hope that others who make stereo motion pictures may profit by our knowledge and experience and thereby make available for the eyes of the public better and evermore exciting stereo films.

DELTA KAPPA ALPHA CINEMA FRATERNITY

(Continued from Page 595)

Members who have accepted the fraternity's admiration and gratitude for their work in the advancement of film in America. Included are such distinguished names as cinematographer and Academy Award winner Arthur Miller ASC; the late Gregg Toland, one of Hollywood's most renowned cinematographers who was also an Academy Award winner; producer Jesse Lasky, and producer-directors William Perlberg, Stanley Kramer, John Huston, and Slavko Vorkapich. These men and the others on the list have and do attend functions staged by the group. Very often they make their wisdom and experience available at informal D.K.A. dinner talks. The sight of top-level professional men and film students together in common interests is a gratifying one. The whole atmosphere is one of goodwill and mutual interest. Once these honorary members have become used to the challenges offered by the students in their probing discussion of the filmmaker's work, they find the experience enjoyable as well as interesting. It seems that in the academic environment, questions that would elsewhere be embarrassing are right in keeping.

The U.S.C. chapter is now preparing the first in a series of exhibits designed to create greater interest in film among high school and college students. These exhibits will first appear at S.C.'s De-

partment of Cinema and later will be circulated on a short loan basis. Within a few weeks a very extensive exhibit on the technique and style of animation will appear. Further evidence of the Fraternity's standing in the Hollywood film industry is the fact that such studios as Disney, U.P.A., Warner Bros., and Walter Lantz all contributed freely and extensively to this exhibit.

Subsequent shows will deal with the fields of cinematography as a science and an art, art direction, and the make-up man. There has been no limit set for this series of exhibits, and the prospects are that it will continue as long as there are people to view it; and this makes Delta Kapa Alpha unique in another way. Fitting into an institution designed specifically for education, the group is embarked on a separate campaign for instruction of those not regularly pursuing this education in film at the parent institution. All the planning and work is the sole responsibility of the members. Because of their past success they generally receive one hundred per cent cooperation from the Universities themselves. At U.S.C. plans are now under way for a permanent four-panel wall mural on the history of the film, and for publication of a quarterly magazine dealing with film production and criticism.

Delta Kappa Alpha is not a new organization. It was founded in the middle 1930's. A strong pledge program, in which prospective members are required to show their interest by working on Fraternity projects, has swelled the ranks. As each new program of activities meets with success and recognition

the Fraternity's position in the professional as well as the academic environment is strengthened.

D.K.A. is unique in another way too: as far as we can tell it is the only fraternity that regularly accepts female members who pass the requirements for acceptance.

ANIMATED MOVIES

(Continued from Page 601)

Bolex. Long before filming started, there were long hours spent in planning the production, writing the script, designing characters and experimenting with various props. Each scene was sketched out roughly in story-board fashion. And when Kallenberg was satisfied he had what he wanted, he picked up his shears and began to cut out his characters, props, and background figures.

Both of the completed films have been comedies, for Kallenberg has a knack in timing that invariably builds for laughs. So remarkable was his achievement in making "Yowie" considered by members of the Long Beach Cinema Club, of which he is a member, they awarded him the Val Pope Memorial Award for distinguished accomplishment.

What are his future plans? He has been reading Grimm's Fairy Tales, and the big dragon has intrigued him. "I've got to get that dragon before my camera," he says. He hasn't worked out the story in detail as yet, but it will

probably be based on the highlights of several of the more colorful Grimm stories. This production should surpass the others which have preceded it for many reasons. First, Kallenberg now has gained considerable experience, knows what will work and what won't with his system. Second, he has a number of new ideas he hopes to work into his coming production; for one thing he expects to make greater use of pastels. Mrs. Kallenberg, who is an artist, will create the fairytale backgrounds. And last but not least, Kallenberg has some ideas for giving his scenes depth by building the backgrounds in layers at different levels. This may complicate the lighting problem at first, but he'll like this just as he has the scores of other problems which he has encountered.

Kallenberg doesn't promise a preview of this new film for at least a year. Time means little when the time consumed is lots of fun and the effort fully worth it.

ELECTRONIC RECORDING OF PICTURES ON TAPE

(Continued from Page 596)

In motion picture production the VTR system works as follows: The instrument for recording the picture is a small, very compact TV camera, similar to the closed-circuit cameras presently in use in industry. This is wired directly to the tape recording unit, which can be located elsewhere, i.e., off stage, or in another room—same as is most sound recording apparatus in the studios today. The magnetic tape used in the recorders travels at a speed of 30 feet per second. A monitor screen enables the cameraman to see the scene exactly as it is being picked up by the recording camera—the same as with standard television cameras. Set lighting procedure would remain pretty much the same as it is today, except that light volume would be reduced considerably because of the extreme sensitivity of the pickup tube.

Cost of a taped black-and-white recording of a TV program was estimated to be 80 to 90 percent less than a kinescope and, for color, 90 to 95 percent less. A 30 minute TV program in black-and-white could be taped for distribution for less than \$15 per copy. Similar economies will result when VTR is applied to motion picture production, say RCA engineers.

W. R. Wilkerson, publisher of the Hollywood Reporter, in commenting on the application of RCA's video tape recording system to motion pictures, remarked that a scientist had pointed out the tremendous ramifications and great savings which the system held for the industry. "The day will soon be at hand, in the use of tape," he said, "when a motion picture exhibitor can press a button, start his projectors, run his entire entertainment, and re-run it

(Continued on Page 618)

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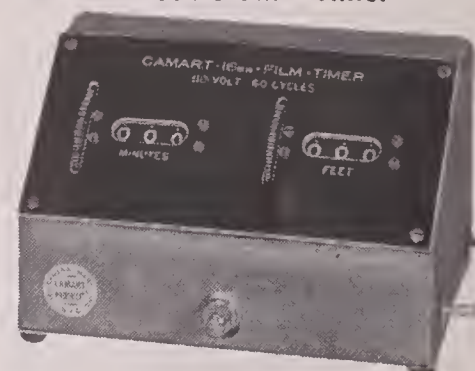
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Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

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COLUMBIA

• HENRY FREULICH, "The Miami Story," with Barry Sullivan. Fred F. Sears, director.
• CHARLES LAWTON, "The Wood Hawk," (Technicolor) with Robert Francis, Donna Reed. Phil Karlson, director.

METRO-GOLDWYN-MAYER

• GEORGE FOLSEY, "A Bride for Seven Brothers," (CinemaScope, Eastman Color) with Jane Powell. Howard Keel. Stanley Donen, director.

PARAMOUNT

• LOYAL GRIGGS, "White Christmas," (Technicolor) with Bing Crosby. Michael Curtiz, director.
• CHARLES LANG, "Sabrina Fair," (Wide-screen) with Humphrey Bogart, Audrey Hepburn. Billy Wilder, producer-director.
• ERNST LASZLO, "About Mrs. Leslie," (Hal Wallis Prod.) with Shirley Booth, Robert Ryan. Daniel Mann, director.
• LIONEL LINDON, "Legend of the Inca," (Eastman Color, Wide-screen) with Charlton Heston, Robert Young. Jerry Hopper, director.
• DANIEL FAPP, "Living It Up," (Technicolor, Wide-screen) with Dean Martin, Jerry Lewis. Norman Taurog, director.
• ROBERT BURKS, "Rear Window," (Wide-screen, Technicolor) with James Stewart. Alfred Hitchcock, producer-director.

• LIONEL LINDON, "Conquest of Space," (Color, Wide-screen) with Eric Fleming, William Redfield. Byron Haskin, director.
• THOMAS TUTWILER, "The Bridges of Toko Ri," (Perlberg-Seaton Prod.: color) with Wm. Holden and Robert Strauss. Mark Robson, director.

REPUBLIC

• HARRY STRADLING, "Johnny Guitar," (Tru-color) with Joan Crawford, Sterling Hayden. Nick Ray, producer-director.
• JACK RUSSELL, "The Outcast," with Dorothy McGuire, Stephen McNally. William A. Seiter, director.

R.K.O.

• HARRY WILD, "The Big Rainbow," (Technicolor) with Jane Russell. John Sturges, director.

20th CENTURY-FOX

• LUCIEN BALLARD, "New Faces," (National Pictures Corp.: CinemaScope, Color Corp. of America) with Ronny Graham, Eartha Kitt. Harry Horner, director.
• LLOYD AHERN, "Princess of the Nile," (Panoramic Prods.: Technicolor) with Debra Paget, Jeffrey Hunter. Harmon Jones, director.
• JOHN SEITZ, "The Kid from Outer Space," (Panoramic Prods.) with Charles Coburn. Spring Byington. Oscar Rudolph, director.

UNIVERSAL-INTERNATIONAL

• MAURY GERTSMAN, "Tanganyika," (Technicolor, Wide-screen) with Van Heflin, Ruth Roman. Andre de Toth, director.
• GEORGE ROBINSON, "Echo Canyon," (Technicolor, Wide-screen) with Joel McCrea, Mari Blanchard. Jesse Hibbs, director.
• CLIFF STINE, "Fireman Save My Child," (Wide-screen) with Hugh O'Brian, Buddy Hackett. Leslie Goodwins, director.
• CARL GUTHRIE, "Playgirl," with Shelley Winters. Colleen Miller. Joseph Pevney, director.

WARNER BROS.

• WILFRED CLINE, "Lucky Me," (Warner-Color, CinemaScope) with Doris Day, Robert Cummings. Jack Donohue, director.
• ARCHIE STOUT, "The High and the Mighty," (Wayne-Fellows Prods.: Warner-Color, CinemaScope) with John Wayne, Claire Trevor. William A. Wellman, director.
• EDWARD DU PAR, "Ring of Fear," (Wayne-Fellows Prods.: WarnerColor, CinemaScope) with Clyde Beatty, Micky Spillane. James Edward Grant, director.

INDEPENDENT

• STANLEY CORTEZ, "Broncho Apache," (Hecht-Lancaster Prods.: Technicolor, Wide-screen) with Burt Lancaster, Jean Peters. Robert Aldrich, director.
• FRANZ PLANER, "The Long Wait," (Parklane Prods.: Wide-screen) with Anthony Quinn, Charles Coburn. Victor Saville, director.
• LESTER WHITE, "Adios, My Texas," (Edward Small Prods.: Wide-screen, Color) with George Montgomery. Ray Nazarro, director.
• JOHN ALTON, "Witness to Murder," (C. Erskine Pics.: Wide-screen) with Barbara Sanders, George Sanders. Roy Rowland, director.

TELEVISION

(The following directors of photography were active last month in photographing films for television, or were on contract to direct the photography of television films for the producers named.)

• JOSEPH BIROC, "Readers Digest" series for Alpha Television, Inc.
• NORBERT BRODINE, "Letters To Loretta" series for Lewislro Enterprises, Inc.
• EDWARD COLMAN, "Dragnet," Mark VII Prods.
• ROBERT DEGRASSE, "Make Room For Daddy," D.P.I. and Marterto Prods., Inc.:
• GEORGE DISKANT, "Four Star Playhouse," Four Star Prods.
• HENRY FREULICH, "Ford Theatre" for Screen Gems.
• KARL FREUND, "I Love Lucy" and "Our Miss Brooks," for Desilu Prods.
• FRED GATELY, "Big Town," Gross-Krasne Productions.
• BURNETT GUFFEY, "Ford Theatre," for Screen Gems.
• RUSSELL HARLAN, "Playhouse of Stars" for Meridian Productions.
• BENJAMINE H. KLINE, "Fireside Theatre," Frank Wisbar Productions.
• JACK MACKENZIE, "The Hank McCune Show" for Video Pictures, Inc.
• WILLIAM MELLOR, "Adventures of Ozzie and Harriett," Stage 5 Productions.
• ERNEST MILLER, "Hopalong Cassidy," William Boyd Productions.
• VIRGIL MILLER, "You Bet Your Life," (the Groucho Marx Show), Filmcraft Productions.
• HAL MOHR, "The Joan Davis Show," Joan Davis Productions.
• NICK MUSURACA, "I Love Lucy," for Desilu Productions.
• KENNETH PEACH, "Ramar of the Jungle," Arrow Productions.
• ROBERT PITTACK, "Cavalcade of America," Jack Chertok Productions.
• MACK STENGLER, "Life With Elizabeth," Snader Telescription Corporation.
• HAROLD STINE, "Lassie" series for Robert Maxwell Associates.
• WALTER STRENCE, "My Little Margie," Roland Reed Productions.
• PHILLIP TANNURA, "The Burns and Allen Show," McCadden Corporation.
• STUART THOMPSON, "Your Jeweler's Showcase," Sovereign Productions.
• GILBERT WARRENTON, "Chevron Theatre," Revue Productions.

ELECTRONIC RECORDING

(Continued from Page 617)

all through the day and the night with little or no help in the projection room. The tape will rewind itself and through that process slice millions each year in projection booth salaries alone."

Perhaps he could have speculated further and envisioned the director of photography in the era of VTR motion picture recording, seated off the set in a glassed-in booth along with the director, and operating lights and camera by pushbutton, tilting and panning the camera, changing focus, yes—even controlling the camera crane and dolly. A monitor screen before him would show exactly what the camera was picking up.

INDUSTRY NEWS

Byron Establishes Scholarships—Two new scholarships at Lehigh University have been established through a gift of \$2500 from Byron, Inc., Washington, D. C. motion picture studios and film laboratory. The awards, given in recognition of the need of the motion picture industry for trained engineers, are part of a long-range program of the Society of Motion Picture and Television Engineers for the encouragement of industry-wide training. With the scholarships go a student membership in the SMPTE.

Selections are made by the University scholarship committee on basis of character, personality and high scholastic achievement and financial need. Preference is given to students enrolled in chemistry, chemical engineering, mechanical engineering, and engineering physics.

AnSCO Promotes—Paul Christman of AnSCO's New York office has been promoted to the company's professional motion picture film department. His headquarters will be in the Chrysler Building from where he will service producers and laboratories in the New York area with AnSCO film and related products.

Old Movies Restored—Early motion pictures reproduced on durable, modern film were screened at the Academy of Motion Picture Arts and Sciences in Hollywood last month. The event marked successful completion of experiments to convert the paper prints of motion pictures, made in the early days of the film industry, to 16mm celluloid, thus making available once again the historic, significant, and interesting movies produced between 1894 and 1912.

When the first commercial motion pictures were exhibited in 1894, there was no provision for copyright protection, but there was a provision for the registration of copyright claims for photographs. This led a number of film producers to get copyright protection on their motion picture films by making paper contact prints from the original 35mm negative and depositing them in the government Copyright Office in the Library of Congress. This practice was followed until 1912, when the copyright law was amended to provide for claims for motion pictures as such.

For more than fifty years these paper prints have been stored in the Library. For the past six years experiments have

been under way to determine a practical means of reconvert the paper prints to film. With the assistance of the Academy, Primrose Productions of Los Angeles has produced positive film prints from the old paper prints. As a result the Academy is launching a program to reconvert more of the prints to film as fast as funds for the purpose are made available.

Filmeffects of Hollywood also has undertaken some experiments with the prints with the object of making some of the old Keystone comedies available for television.

Many of the restored prints are of films of historical importance, such as troop movements during the Spanish-American war; of President McKinley making a speech prior to his assassination; and of the ill-fated steamship Titanic, etc. Included also are a number of early-day comedies.

3-D Handbook—Polaroid Corporation, New York is distributing free to qualified companies and personnel in the motion picture industry, a new 14-page handbook presenting a complete step-by-step guide for the projection of 3-D films. The booklet also describes in detail the proper use of the new synchronization and monitoring equipment that Polaroid is making available nationally as part of its recently announced Technical Service Program.

Kodak Earnings—Third-quarter sales and net earnings of Eastman Kodak Company were higher this year than in the same quarter of 1952. Outstanding factor in sales and earnings results, according to company, has been continuing high demand for photographic products. Sales of photographic items to government increased somewhat in the quarter over a year ago, but totals for the three quarters were down, owing to earlier declines. An important factor in company's professional motion picture film sales is the active shift by the industry to more color. Television demand for 16mm film continues good.

Gilbert Warrenton, ASC, in addition to directing the photography of Revue Productions' "Chevron Theatre" TV film series, also has photographed "Pride Of The Family," Meet Mr. McNutley," and "City Detective" for same producer.

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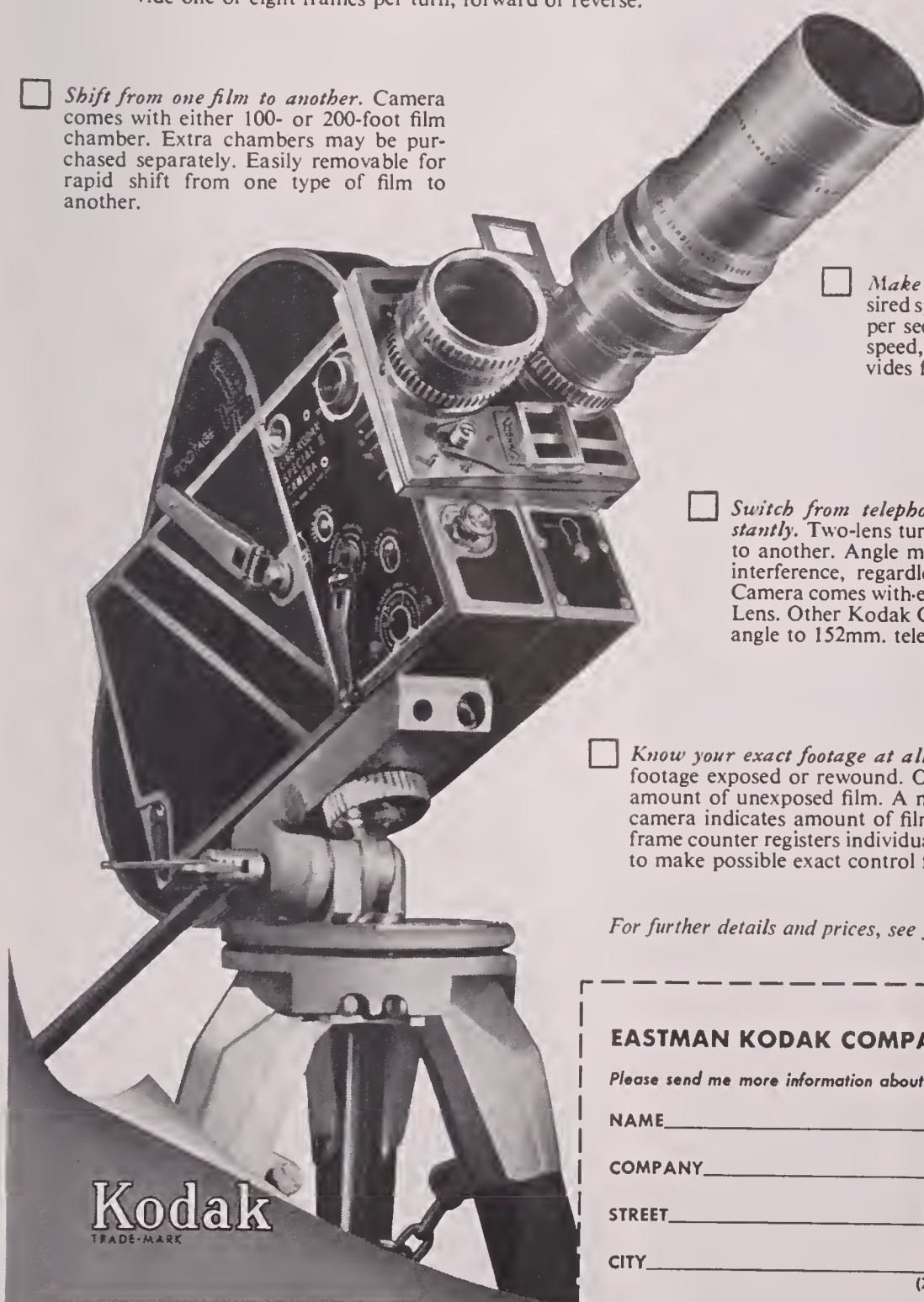
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